

Volume 3

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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

BEFORE THE HONORABLE WILLIAM H. ALSUP

ORACLE AMERICA, INC.,)	
)	
Plaintiff,)	
)	
VS.)	No. C 10-3561 WHA
)	
GOOGLE, INC.,)	
)	
Defendant.)	San Francisco, California
)	April 18, 2012

TRANSCRIPT OF JURY TRIAL PROCEEDINGS

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(Appearances continued on next page)

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P R O C E E D I N G S

APRIL 18, 2012

7:28 a.m.

(Proceedings held in open court, outside
the presence and hearing of the jury.)

THE COURT: Shall we start?

MR. VAN NEST: Good morning, your Honor.

THE COURT: How is everybody?

MR. VAN NEST: Just fine.

THE COURT: Getting plenty of sleep?

(Laughter.)

MR. JACOBS: As long as I stay on New York time.

THE COURT: I know trial is brute work. I don't
think the press understands how hard it is to try a case if
you're the lawyer. You probably get about three hours of sleep
a night, maybe not even that much.

So I may not seem like it, but as an old trial lawyer
myself I'm sympathetic.

All right. For the benefit of the press, somebody
yesterday thought that I was saying that you can't come in and
out of the courtroom. At least that's what my excellent Clerk
told me. I don't go quite that far. I don't like it when
members of the press or the public are going in and out of that
door a lot, because think about it. It's a big distraction and
the jury will look over there and lose track of the excellent

1 cross-examination that the lawyers are trying to do, or for
2 that matter the direct examination.

3 So I discourage you from doing it, but I'm not going
4 to say you can't. If you want to go in and out okay. We'll
5 try it and see how it goes, but if it gets out of control, then
6 we'll have to deal with it. So please be mindful of the need
7 for everyone in the public seating to be courteous with these
8 lawyers and not distract from their opportunity to make points
9 with witnesses and so forth.

10 So the CSO's will please understand that I'm not
11 saying people can't come in and out. I like to see it happen
12 at the breaks, natural breaks, like at the end of a direct
13 examination or at the end of a cross, but I won't say you can't
14 come in in the middle. However, if it becomes a problem, I'm
15 going to adjust that.

16 With respect to the key pads, it is important that it
17 be absolutely silent and no noise out there. I think -- my own
18 observation is that, with one exception, all of you are doing a
19 great job on that and I appreciate it. And I know the lawyers
20 do, too. All right. So there we are on that piece.

21 Any issues the lawyers want to bring up today?

22 **MR. JACOBS:** A few items, your Honor.

23 First of all, just to note, we have provided I
24 believe, your staff has a copy of our deposition designations
25 of Larry Page, as the Court has requested, along with a DVD of

1 the video.

2 **THE COURT:** I haven't seen that yet. Show me what
3 you're talking about.

4 (Whereupon, document was tendered
5 to the Court.)

6 **THE COURT:** So there is nothing highlighted here, so
7 that indicates that there is no complaints, right?

8 **MR. JACOBS:** This is what was actually played in
9 court.

10 **THE COURT:** Oh, oh. I'm sorry. I thought you wanted
11 me -- okay. So then this is Trial Exhibit 1041? Is that it?
12 That's what it says here.

13 **MR. JACOBS:** That's what it says, yes, sir.

14 **THE COURT:** So that will just be made part of the
15 record. Excellent. Thank you for doing it.

16 (Trial Exhibit 1041 received in evidence)

17 **THE COURT:** Dawn, I'll give it back to you.

18 **THE CLERK:** Thank you.

19 (Whereupon, document was tendered
20 to the Clerk.)

21 **THE COURT:** What's next?

22 **MR. JACOBS:** We would like to move into evidence some
23 exhibits that are undisputed, but would rather not take jury
24 time to do this.

25 **THE COURT:** How many do you have?

1 **MR. JACOBS:** There are a fair number. They are of a
2 type. So we have the copyright registrations and we have the
3 source code for various versions of Java. And I could --

4 **THE COURT:** All right. Is there going to be a
5 problem here?

6 **MR. VAN NEST:** Yes, there will be.

7 **THE COURT:** Give me a heads-up on the problem.

8 **MR. VAN NEST:** The heads-up is that we had agreed
9 that most of the copyright registrations could come in.
10 We were objecting on the source code because that's
11 really not self-explanatory. They should come in with a
12 witness.

13 There are some numbers listed on the copyright
14 registration list that were inaccurate or is messed up. I
15 thought we were in the process of putting an agreed list
16 together to give to your Honor. I'm happy to meet-and-confer
17 with Mr. Jacobs on it, but the meet-and-confer wasn't complete,
18 as far as I understood.

19 **MR. JACOBS:** Just a moment, your Honor. I have a
20 different understanding.

21 **THE COURT:** All right.

22 (Discussion held off the record
23 amongst plaintiff's counsel.)

24 **MR. JACOBS:** We will do this offline, your Honor.

25 **THE COURT:** If there is an objection, you have to do

1 it the hard way. There is no point in offering a stipulation
2 until it's ready. So that will just have to be done later.

3 Okay. What else?

4 **MR. JACOBS:** There was one exhibit used with
5 Mr. Page's video deposition yesterday that did not come into
6 evidence, was not received into evidence, and that's Exhibit 2.

7 **THE COURT:** Well, on the thing that you gave me, that
8 was the translation, it shows that it was -- it did come in.

9 **MR. JACOBS:** It was shown in court and then your
10 Honor reminded us of the importance of formally moving them
11 into evidence, and we checked and understood that 2 was in.

12 **THE COURT:** All right. Exhibit 1, 2, 7 and 401,
13 correct?

14 **MR. JACOBS:** Yes.

15 **THE COURT:** All of those I'm going to receive in
16 evidence unless I hear an objection.

17 **MR. VAN NEST:** I'm sorry. What's the list, your
18 Honor?

19 **THE COURT:** 1, 2, 7 and 401. Those are the ones
20 shown during the deposition of Larry Page.

21 Any objection? One is already in independently.

22 **MR. VAN NEST:** No objection, your Honor.

23 **THE COURT:** All of those are received.

24 (Trial Exhibits 2, 7 and 401 received in evidence)

25 **THE COURT:** Now let's do this in the future. Before

1 you show a videotaped deposition, you need to -- and if
2 anything in there is going to be shown to the jury from a
3 document, you need to move it into evidence first. This not
4 after the fact. Okay? That way we will sort this out ahead of
5 time.

6 Okay. What's next?

7 **MR. JACOBS:** There are other documents we would like
8 to move into evidence. They represented party admissions.

9 **THE COURT:** How many much those are there?

10 **MR. JACOBS:** 17, your Honor.

11 **THE COURT:** Let's try the first one, just by exhibit
12 number.

13 **MR. JACOBS:** Trial Exhibit 3.

14 **THE COURT:** Any objection?

15 **MR. VAN NEST:** I'm not even sure what it is, your
16 Honor. This is not something I understood was asked for,
17 requested or even mentioned until right now.

18 **MR. JACOBS:** That's not correct, your Honor. We
19 emailed this over two days ago and then we reminded Mr. Van
20 Nest's colleagues of this yesterday. There may be an internal
21 communication problem.

22 **THE COURT:** So show counsel No. 3. Any objection to
23 No. 3?

24 **MR. VAN NEST:** This is a trial exhibit that hasn't
25 been shown to a witness yet.

1 **THE COURT:** That's not -- that's not necessarily a
2 basis for -- you have an evidentiary objection?

3 **MR. VAN NEST:** I object, your Honor.

4 **THE COURT:** It's not in. It's not in. That's
5 enough. If you object, it's going to being done the hard way,
6 through a witness.

7 Now, I hope you're not doing that just so they will
8 burn up their time.

9 **MR. VAN NEST:** I'm absolutely not, your Honor. This
10 was handed me now for the first time. I'm not sure why we're
11 even engaging in this.

12 **THE COURT:** We're not going to do it this way,
13 Mr. Jacobs.

14 I think you and Mr. Van Nest should have a conference
15 on this and not somebody way down, down the totem pole.
16 Something has gotten lost in translation. So we're not going
17 to do it this way. You're going to have to do it through a
18 witness.

19 All right. What else do you have?

20 **MR. JACOBS:** You raised four questions yesterday and
21 have answers or a process for answers, if you would like to go
22 over that now or you would like to defer that.

23 **THE COURT:** Go ahead, please. I'm interested in the
24 answers.

25 **MR. JACOBS:** So we did a count of the number of

1 methods in the 37 API packages that are copied in Android and
2 it's -- plus or minuses around 4500.

3 **THE COURT:** But these are not copied word-for-word,
4 are they?

5 **MR. JACOBS:** Yes, they are copied word-for-word.

6 **THE COURT:** Word-for-word?

7 **MR. JACOBS:** Yes.

8 **THE COURT:** I thought they used different source
9 codes.

10 **MR. JACOBS:** You asked for the number of methods that
11 are -- I understood that the API elements of the methods are
12 what you were asking about and that's what was copied
13 word-for-word.

14 **THE COURT:** You mean, like a declaration?

15 **MR. JACOBS:** Correct.

16 **THE COURT:** But not the source code that implements
17 it?

18 **MR. JACOBS:** Not copied word-for-word, your Honor.
19 We do believe the structure of the source code is reflective of
20 the copying of the method declarations that will be illustrated
21 in the testimony that comes today or tomorrow.

22 **THE COURT:** All right, 4500. Okay. Thank you.

23 **MR. JACOBS:** Then when Dr. Reinhold testifies, he
24 will explain how these API specifications are developed that
25 will help answer your question about contributions from third

1 parties.

2 **THE COURT:** Are there any contributions for third
3 parties or is it all done in-house by Sun?

4 **MR. JACOBS:** There are contributions from third
5 parties.

6 **THE COURT:** For now that's enough to note.
7 Okay. What's next.

8 **MR. JACOBS:** Then you asked for a definition of a
9 method declaration.

10 **THE COURT:** I think I know that now, but you go ahead
11 and tell me.

12 Can I say it in my own words and then you correct it?

13 **MR. JACOBS:** Sure.

14 **THE COURT:** All right. I'm going to be more generic
15 and not in Java per se, but then you can correct it.

16 In any programming language the program needs to know
17 when a subroutine is being called out or identified. So if you
18 have a subroutine, for example, that will return the greater of
19 one or two things, you need to have a -- you need to declare
20 that it exists so that the program will be on the look-out for
21 that, or the computer will be on the look-out for that
22 subroutine.

23 But in addition, you need to say where it starts and
24 stops so that when the subroutine is called up, it will -- the
25 computer goes to that point, does the routine. It says end

1 sub. Then it goes back to where it was in the program. And so
2 the declaring of the subroutine is what we're talking about.

3 Now, that is a concept I understand. It may not be
4 exactly -- it may not even be close to what you're talking
5 about, but tell me how close or far off that is?

6 **MR. JACOBS:** I think it's a different use of the term
7 perhaps. In the world of this dispute, a method declaration is
8 a statement that defines an API element. So the declarations
9 for the different kinds of elements, packages, classes,
10 interfaces, fields and methods are done differently, but they
11 all include the name of the element and define many of the
12 relationships the element has to other API elements.

13 The method declaration includes the name of the
14 method, the type returned by the method, the parameters of the
15 method, if any, each of which have a type and a name. And
16 optionally a method declaration can begin with a modifier, like
17 public or static, and may be followed by the exceptions that
18 the method shows. And then in the implementation the
19 declaration is followed by the Java code that carries out the
20 function of the method, even if the function is literally to do
21 nothing.

22 I think that's a different meaning of declaration
23 than your Honor is --

24 **THE COURT:** That's a more -- okay. I don't think
25 it's necessarily different from what I said, but it's better

1 than what I said.

2 All right. Let's hear from the other side. Do you
3 have any --

4 **MR. JACOBS:** There was one more question. You asked
5 about derivative works and whether it's a fact issue.

6 **THE COURT:** Correct.

7 **MR. JACOBS:** I think we know this -- I don't think we
8 truly know the answer to this question yet because the
9 testimony hasn't come in and the instruction hasn't been given.
10 So one could imagine a world in this lawsuit still in
11 which there are fact issues about whether the code is a
12 derivative work of the specification.

13 I don't expect that. And I think that was the thrust
14 of Google's counsel's comments also.

15 If the instruction is that the selection, structure,
16 arrangement, organization of the application programming
17 interfaces is protectable by copyright because Google is not
18 likely to contest that that -- that that material is copied
19 into the Android class libraries, then there should not be a
20 fact issue whether the class libraries are a derivative work of
21 the specification.

22 **THE COURT:** Well, in the ordinary case -- in the
23 ordinary case, let's say, where somebody has a movie script and
24 then the movie company comes out with a similar movie but it's
25 not quite the same, is the issue of derivative work something

1 for the jury or is it for the judge?

2 **MR. JACOBS:** It probably starts out with the judge,
3 and then moves to the jury if the judge doesn't resolve it at
4 the level of the extrinsic test. But if -- but so the short
5 answer to your question is: It could well be a question for
6 the jury where the defendant is disputing substantial
7 similarity of the protectable element of the work.

8 **THE COURT:** Okay.

9 Mr. Van Nest, did you want to weigh in on any of
10 these issues?

11 **MR. VAN NEST:** Yes, your Honor. Mr. Kwun will do so.

12 **THE COURT:** Very well.

13 **MR. KWUN:** Good morning, your Honor.

14 **THE COURT:** Good morning.

15 **MR. KWUN:** So I think, first of all, when they were
16 talking about a method declaration and they said that it
17 defines the elements of the API, a method declaration defines a
18 method. That's why it's called a method declaration. I've
19 never heard the term used with other elements, but -- or at
20 least not often, but I suppose you could have an interface
21 declaration, which would be a declaration for an interface
22 or --

23 **THE COURT:** You could define an array, couldn't you.

24 **MR. KWUN:** You could have an array -- I don't know
25 that I've ever heard it referred to as an array declaration,

1 but I suppose that usage would probably be understood.

2 But if it's a method declaration, then it has to be a
3 method because that's why it's called a method declaration.

4 On this last point, were the Court to conclude that
5 the structure of the APIs is copyrightable, there is still a
6 question of whether or not there is infringement and at that
7 point there would need to be a comparison of the works; not
8 just the material taken, but the works. And depending on what
9 the Court said was copyrightable, and there were what was
10 allegedly copied, that comparison would be different.

11 If the Court said that almost nothing was
12 copyrightable, but something was, then there would be a very
13 tightly constrained range of protectable expression, which
14 under *Apple v Microsoft* would require a virtual identity test
15 as opposed to more substantial similarities.

16 So I think it overstates things to say that there
17 would be no jury question in that instance.

18 If the Court were to find that the material is not
19 protectable, then there would be no jury question because there
20 would be nothing protectable that was copied.

21 **THE COURT:** Any other comments?

22 **MR. KWUN:** No other comments.

23 **THE COURT:** Do you agree with the 4500 number?

24 **MR. KWUN:** I think that number is in the ballpark.

25 **THE COURT:** So have a seat. Thank you.

1 One possibility here. Let me preface this by
2 beginning, I do not know the answer and I'm going to listen
3 carefully to the evidence because I think the evidence will be
4 highly illuminating on this, but I don't know whether at the
5 end of the evidence the Court is going to say the SSO is -- by
6 Structure Sequence Organization is protectable or not
7 protectable.

8 Now, one possibility is to defer that decision and
9 let the jury answer the question; go to the jury as if it is
10 protectable, reserving on that issue so that even if I were to
11 say later it was not protectable, at least we would have a
12 record that could go up to the Court of Appeals and give the
13 Court of Appeals the options to -- you know, both options as
14 opposed to having to retry the case.

15 So I want you to know I'm thinking about that, that
16 possibility, but right now I haven't learned enough evidence
17 here to give you a decision on whether or not the SSO is in and
18 of itself copyrightable.

19 I want to come back to something practical for the
20 jury. Would you please come up with a list, I hope it can be
21 one page, of the deposition exhibit numbers. This is too long.
22 This shows you the -- one of the problems with modern
23 computers. You see how big that document is? There are really
24 only four lines on there that make any difference. And what I
25 want you to do is come up with a one-page simple document that

1 has every single translation needed for the entire case where
2 you did not follow my guidelines and you nonetheless marked
3 deposition exhibits out of order.

4 And so it would say -- I don't know, do it anyway you
5 want. Say, Trial Exhibit 1, Deposition 517, but you can get it
6 all onto one page instead of having this (indicating).
7 particularly confusing document.

8 You have don't have to give it to them today, but
9 sometime in the next week or so let's come up with a
10 comprehensive omnibus, one-page-fits-all for both sides. Both
11 sides probably have the same problem and we'll give them a
12 handy-dandy cheat sheet that tells them what deposition exhibit
13 is a trial exhibit.

14 All right. The other thing to do is maybe a Who's
15 Who, a one-page Who's Who of -- they know who the famous people
16 are, but they may not know who the not-so-famous people are and
17 what their position is. And I think that would be a nifty
18 document to give to the jury so they will have that. And I ask
19 you to meet-and-confer and give to the -- come up with an
20 agreed-upon one page, like 10 names from each side, 12 names
21 from each side, something like that.

22 All right. Anything more before we get started?

23 **MR. BOIES:** I have one thing, but go ahead, please.

24 **MR. VAN NEST:** We just had two things, your Honor, on
25 witnesses and exhibits. One is just a heads-up.

1 Mr. Boies and I, I think, have worked this out, but
2 we received from the plaintiff last night a list of additional
3 exhibits they wanted to use with Mr. Page. Obviously, they
4 recognized that's late. They agreed to withdraw those. Mr.
5 Boies told me if he intends to use one of those, he'll bring it
6 over and I can see it. We'll confer first.

7 So there may be a little bit of that if we get into
8 that. I just want to alert the Court to that possible issue.

9 **THE COURT:** You can always use it for impeachment,
10 but I do regard impeachment as narrow.

11 **MR. VAN NEST:** Right.

12 **THE COURT:** It has to be a document authored by or
13 signed by something -- it's not just a broad statement that
14 contradicts the general themes of your case.

15 **MR. VAN NEST:** Right.

16 **THE COURT:** It has to be a prior inconsistent
17 statement by that witness or close to it.

18 So you could use it for that, but it wouldn't
19 necessarily come into evidence. It would just -- you would
20 just have to do it in the impeachment way.

21 But if you want to get it into evidence as part of
22 your case-in-chief, then -- now, here is the thing, Mr. Van
23 Nest. You're going to have the same problem in due course.
24 You lawyers ought to cooperate with each other and if you're
25 not really prejudiced, you ought to agree to what Mr. Boies

1 wants to do.

2 On the other hand, if you were prejudiced, you ought
3 to stand on your rights and insist on the -- so forth. But I
4 know before this trial is over, you're going to be begging me
5 to do exactly what he wants to do and I will remember this
6 moment.

7 **MR. VAN NEST:** I'm sure you will, believe me.

8 I think we have worked it out in this instance and I
9 just wanted to alert the Court so that you weren't surprised by
10 whatever meeting-and-conferring pursued.

11 Mr. Purcell has a comment on Mr. Screven.

12 **MR. PURCELL:** Yesterday afternoon they disclosed a
13 demonstrative that they want to use with Mr. Screven today and
14 it's late. They needed to disclose those two days before the
15 witness examination.

16 **THE COURT:** Does that mean for the rest of the trial
17 if you're late, you're going to be out of luck?

18 **MR. PURCELL:** The rule as I understand it is --

19 **THE COURT:** That is the rule.

20 **MR. PURCELL:** (Continuing) -- if you want cross
21 exhibits, you have to disclose all the direct exhibits two days
22 before. They did disclose the other direct exhibits. We did
23 give them cross exhibits.

24 We think there is prejudice and we would object to
25 them using it in the demonstrative.

1 **THE COURT:** Can I see the demonstrative?

2 **MR. NORTON:** We will not use the demonstrative.

3 **MR. BOIES:** Your Honor, with respect to what
4 Mr. Van Nest is talking about, there is one exhibit that I
5 think it judicious just to raise with the Court in terms of
6 impeachment, and that is Exhibit 10.

7 **THE COURT:** Show it to counsel and then show it to
8 me. Is this to be used with Mr. Page?

9 **MR. BOIES:** Yes, your Honor.
10 (Whereupon, document was tendered
11 to the Court.)

12 **MR. BOIES:** This is the famous Lindholm email that is
13 not signed by Mr. Page, but it is a party admission and it does
14 directly contradict what Mr. Page said on the witness stand
15 yesterday.

16 **THE COURT:** Which part contradicts it?

17 **MR. BOIES:** Where he says that he didn't know
18 Mr. Lindholm and didn't give him any instructions.

19 What Mr. Page says is what we have been actually
20 asked to do by Larry and Sergei, which obviously refers to --

21 **THE COURT:** Remind me. Yesterday he said he did not
22 know who Mr. Lindholm was.

23 **MR. BOIES:** Yes.

24 **THE COURT:** So what's the problem with -- this
25 document is clearly going to come into evidence eventually.

1 What's the problem with letting him show this to him now? And,
2 "This email says that Larry asked him to do this, and is that
3 true or not." What's wrong with that?

4 **MR. VAN NEST:** Two things, your Honor. It doesn't
5 meet your criteria for impeachment. It's not a statement by
6 Mr. Page or adopted by him, so it falls outside that.

7 I think it also possibly launches into some
8 privileged areas, but I'm not sure what the question would be.

9 I have no problem with Mr. Boies asking Mr. Page
10 whether he remembers giving Mr. Lindholm any instructions, but
11 obviously Mr. Page didn't author this. He's not a recipient of
12 it. I think this would be far outside what you would normally
13 allow for impeachment, certainly.

14 Again, it was disclosed after, after he was on the
15 stand. Not just late, but after he was on the stand.

16 **THE COURT:** Here is the ruling. Look. I'm going to
17 let Mr. Boies use this as follows. This document is clearly
18 going to come into evidence. The Court of Appeals for the
19 Federal Circuit has said it's not privileged and every judge
20 that's ever looked at it says it's not privileged. So it's
21 going to come into evidence in due course.

22 It does refer to the witness on the stand and it's a
23 fair question, whether or not he will stand by what somebody
24 else in the company says he did. So I'm going to let him --
25 I'm going to let Mr. Boies ask that question.

1 Now, what I don't want you to do is to get into an
2 argumentative mode over it. If he says, "No, I don't know who
3 Mr. Lindholm is. I never heard of him. This is a forgery. He
4 doesn't even work for the company," whatever. Whatever the
5 answer is. Let's not get into an argument with him over it.

6 You have a limited latitude to bring this up, but the
7 problem is it isn't real impeachment because he didn't sign
8 this document. But since it refers to him, and somebody else
9 in the company is probably going to come in and say he did, in
10 fact, ask us to do this -- we don't know even that really for
11 sure, but we -- there is enough good faith evidence here in
12 this email to say that that probably happened that I'm going to
13 let you ask a limited number of questions on the subject of did
14 he ask Mr. Lindholm to do this. I think that's -- that's a
15 legitimate thing.

16 So you can show No. 10 to the jury, but it is not
17 actually in evidence yet because he's -- he presumably never
18 saw this.

19 All right?

20 **MR. VAN NEST:** Your Honor --

21 **MR. BOIES:** Your Honor, I just want to clarify one
22 thing. We did not give these documents specifically for
23 Mr. Page, but this was one of our 10 documents that we gave to
24 the Court. And we did notify them that we were going to use
25 these documents, and we had a misunderstanding on our side as

1 to whether or not those documents carried forward
2 witness-to-witness. It was our intention to use these 10
3 documents with every one of the witnesses. And there was a
4 miscommunication --

5 **THE COURT:** I think you've got to tell them
6 witness-by-witness.

7 **MR. BOIES:** Yes, yes.

8 **THE COURT:** But this document is the -- it's one of
9 the top 10 documents in the whole case. There can't be any
10 prejudice.

11 I know Mr. Van Nest has been thinking about this
12 document. There is no -- there's no prejudice to using it in
13 the limited way that I've said.

14 Yes, Mr. Van Nest. What were you going to say?

15 **MR. VAN NEST:** My only request, your Honor, is,
16 again, if you're going to allow the examination, that's fine;
17 but I really don't think this should be published to the jury
18 with the witness if the witness says, "I've not seen it. I
19 don't know it."

20 What he said yesterday is he thinks Mr. Lindholm
21 works for the company, but he doesn't have a clear recollection
22 of him.

23 **THE COURT:** The thing is Mr. Lindholm is going to
24 come in and put this into evidence. Then we have to bring back
25 Mr. Page to go over it all over again. And I have the

1 discretion to order the method of proof, and that's a
2 cumbersome method of proof. There is no doubt this is going to
3 come in.

4 I'm going to be let it be shown to the jury. But
5 when Mr. Lindholm comes or somebody else comes, you need to --
6 you need to get it into evidence then.

7 All right?

8 **MR. BOIES:** Yes.

9 **THE COURT:** All right. I'm going to hand it back to
10 Mr. Boies.

11 (Whereupon document was tendered
12 to counsel.)

13 **THE COURT:** Here is the amount of time. 131 minutes
14 has been used by Oracle. 62 minutes has been used by Google;
15 131, 62. Okay? I'm keeping track of your time.

16 Let's bring back the jury and, but don't bring back
17 the witness quite yet. I have a few things I want to take up
18 with the jury. And then we will bring back the witness so he
19 should be in the ready position to come back.

20 (Jury enters courtroom at 8:00 a.m.)

21 **THE COURT:** Welcome back. Have a seat, please. Okay
22 this morning?

23 (Jury nodding affirmatively.)

24 **THE COURT:** Have your notepads? The Federal donuts
25 and coffee still working out?

1 (Jury nodding affirmatively.)

2 **THE COURT:** Good. Let me go over a few things and
3 then we're going to pick right up with the witness that we had
4 on the stand, but I want to first say that the -- to apologize
5 for something that is not really an apology, but an
6 explanation.

7 In the course of a trial you will undoubtedly --
8 especially one this long -- run into the lawyers in the
9 elevator maybe some day or at the coffee stand on the second
10 floor, or maybe the 10th floor. And you will note probably
11 that they are -- they don't say much. They say maybe "good
12 morning" and that's it. Period. And you might think, "Boy,
13 that's such a rude lawyer. That guy, he wouldn't even talk to
14 me about the weather."

15 Well, actually they are not being rude. They are
16 being very respectful of you and the important job that you
17 have and showing you respect by making it clear that they're
18 not trying to curry any favor with you by chatting you up. You
19 understand that? So if you do run into them, which they --
20 they actually go out of their way to try to avoid you.

21 But they do it out of reasons of professionalism and
22 respect for the process. And I say this to all juries so that
23 they understand there is no rudeness involved at all. It's
24 exactly the opposite. It's respect for you and the job you've
25 got to do. So that's point number one.

1 Point two. You have seen some of these depositions
2 now and I want you to understand that the testimony given in a
3 deposition is evidence in the case. So even though the lawyer
4 may be reading to you the deposition -- you know, I told you
5 what the lawyers what they say is never evidence -- that is an
6 exception. If they actually read it out loud, "Question,"
7 "Answer," "Question," "Answer," verbatim, then that is evidence
8 in the case that you may consider. So I want you to be aware
9 of that.

10 Deposition testimony counts just as much as testimony
11 here in the courtroom unless for some special reason, which I
12 might tell you, and every now and then it has a limited use,
13 but that's rare. So basic rule, deposition testimony counts
14 just as much as trial testimony.

15 Now, I have one other thing which is a -- I wanted to
16 try to describe very briefly some of the things that -- as a
17 heads-up that you might want to be listening for because at the
18 end of this part of the trial, I will be asking you to make
19 certain specific decisions about them. Of course, you need to
20 be paying attention to everything. There are many issues going
21 on here.

22 But putting myself in your position, you may be
23 sitting over there saying, "My God, what am I going to have to
24 decide?" You know, you're hearing all about high finance and
25 computers and, you know, brilliant people who know how to

1 program these gigantic machines. And you're saying, "What am I
2 supposed to decide at the end of this case?"

3 So let me give you a very brief summary and I will
4 give you details on this later. But this is kind of a just an
5 introduction, is the word I would use.

6 So first of all: What is a copyright? A copyright
7 is a right under federal law to exclude somebody else from
8 reproducing some copyrighted work. A copyrighted work can be a
9 book, a musical work, a literary work, dramatic work. There
10 are a quite a number of things, a photograph even, motion
11 picture, sound recording, architectural work. And it can be a
12 computer program.

13 Now, some things cannot be copyrighted. Those are
14 things like facts or ideas, procedures, processes, systems,
15 methods of operation, concepts, principles or discoveries
16 cannot themselves be copyrighted. So if somebody were to write
17 a book about Einstein and $e=mc^2$, then that doesn't mean
18 that they get a copyright on the book. That doesn't mean they
19 get the exclusive right to use those ideas. $E=mc^2$ is
20 part of science, right? So that doesn't mean that just because
21 you get a copyright. But what it does mean is that you have
22 the right to that -- the words in that book, the way you set
23 out the book and the copy, so to speak, that belongs to you.

24 Now, to prove infringement the owner of the copyright
25 has got to show copying of the original elements of the

1 copyrighted work. And to prove copying what the plaintiff
2 needs to show is that the defendant had access to the
3 copyrighted work, access to, and that there are substantial
4 similarities between the defendant's work and the copyrighted
5 work.

6 All right. This is a very -- at the end I'll give
7 you a lot more instructions on that, but that is a very general
8 introduction to the concept of copyrights.

9 Now, I have one last thing to say which may be of
10 some use to you as a framework for you to be thinking about
11 this case, because you've heard a lot about Java. You have
12 heard a lot about Android. And you may be wondering over
13 there, what is it that's actually in contention?

14 So first I want to say what's not in contention. And
15 the parties have been pretty good about helping me identify
16 this. I will tell you what's not in contention.

17 So Oracle does not accuse copyright infringement of
18 the following, does not: Android's use of the Java programming
19 language. That's not challenged, nor is any particular name of
20 an API -- by now you know what that stands for. It stands for
21 Application Programming Interface. The particular name of an
22 API element including names for the packages, the classes, the
23 exceptions, the fields, the methods, the parameter names.
24 Those names themselves are not challenged.

25 Next is not challenged is the Android source code

1 implementing the APIs in these 37 packages, and this is at the
2 line-by-line level.

3 Now, I'm going to give you an important exception to
4 that in a minute, but in this case, as I understand it, Oracle
5 is not challenging the line-by-line of the millions of lines of
6 code, except in a few instances. Nor is Oracle challenging the
7 idea, the idea of an API.

8 You've heard about a virtual machine that will
9 translate to different types of computers, like Apple versus
10 IBM. The Dalvik is one of the names you've heard. The Dalvik
11 virtual machine is not challenged in this case. That is not
12 something that Oracle is accusing of having been part of any
13 infringement.

14 And, finally, what is not being challenged is
15 Android's API packages and their contents, except for the 37.
16 There are 37 API packages that are challenged. There are a lot
17 more than 37 involved, but 37 is the number that's being
18 challenged.

19 All right. So now what is being challenged? All
20 right. So now I'm going to try to help you on that. And I
21 think the lawyers did a pretty good job of laying this out for
22 you in their opening statements, and they will eventually
23 correct me if I get it wrong. This is, of course, subject to
24 me, myself, possibly misunderstanding here, but I think I've
25 got this right.

1 What is being challenged? Now, the part that is
2 being accused of infringement are these 37 Application Program
3 Interfaces.

4 Now, there are two files that -- in the 37
5 Application Program Interfaces. Two files. Not two
6 Application Program Interfaces, but two files somewhere inside
7 all those subparts that contain nine lines of the range check
8 code and it is accused here by Oracle of being
9 symbol-by-symbol, line-by-line exactly the same. And that's
10 accused of being copied.

11 In addition, there are two files within the 37 where
12 there are some comments in the file that are accused. Now,
13 what is a comment? I think what you will find, and this is
14 subject to the evidence, is a comment is something that is
15 actually listed there in the listing of the program, but it is
16 not part that gets compiled by the computer; but is a plain
17 English statement for the reader so that the reader comes along
18 later and looks at it and tries to figure out, you know, what
19 was this meant to do? What does this line of code do? And the
20 comment says, this is the one that, you know, picks the greater
21 of A versus B or whatever. Whatever the comment wants to say.
22 The programmer is trying to keep track of -- be kind of like
23 recipe maybe. You put a little side note out there saying what
24 is the point of this step in the recipe. The comment is trying
25 to say: What is the point of this line of code?

1 Anyway, those don't get compiled by it computer, but
2 they are in plain English that are read to the -- that the user
3 can look at. All right. So that is the comments.

4 So to back up. Two files are accused of having
5 identical comments.

6 Okay. In addition, in these 37 Application Program
7 Interfaces accused are declarations. I'm not going to try
8 really to explain what a declaration is. I'll just say the
9 evidence will tell you, but the declarations are something
10 that -- it's like a title in some ways. A title of a method.
11 Or a title of a routine. And it's specific language with dots
12 and parentheses and so forth that the computer will recognize
13 and the program will recognize to call up a particular method.
14 A declaration.

15 And accused here in this system is a -- it is said
16 that the declarations are identical word-for-word,
17 symbol-by-symbol.

18 Now, we come to one that you will hear a lot about is
19 called Sequence Structure Organization, or Structure Sequence
20 Organization. Oracle says -- these are the allegations. It's
21 up to Oracle to prove this, but Oracle says that the 37
22 Application Program Interfaces may not have, and do not have,
23 the same source code when you get down to the line-by-line
24 level, but that they have the identical Structure Sequence and
25 Organization. Kind of like saying it has the same outline or

1 the same file organization; that the files, the subfiles, the
2 subsubfiles, everything is organized exactly the same way or
3 very close to it according to Oracle. And so that while the
4 line-by-line code wasn't copied, the overall architecture,
5 according to Oracle, was copied.

6 So that's another item that you should be listening
7 for, is Sequence Structure Organization. One last item on the
8 37 Application Program Interfaces. You know how when you buy a
9 car or anything really, you get a user manual, tells you how to
10 use it? And, well, there is documentation that is pretty thick
11 in this case that explains what the various methods and classes
12 and fields, you know, what they do for a living. And it's
13 precise statements of what a particular method would do so that
14 a programmer, you know, who wants to do an application can look
15 at that and say, "This is the one I do need to use. This is
16 the one I don't need to use," and it tells the programmer who
17 is doing the application what that item does. It might specify
18 more than that. It might even say what inputs are needed, what
19 outputs are going to be returned. It's a detailed booklet.

20 That's written, though, in plain English. That's not
21 something the computer reads. That's written so that the user
22 can understand what's going on. In this case, Oracle accuses
23 Google of having plagiarized the documentation.

24 Okay. So just to put a point on it. I'm going to go
25 back in reverse order.

1 Sort of the user manual documentation, that's in
2 issue. That you should be listening for.

3 Structure, Sequence and Organization. Not at the
4 line-by-line level, but the overall architecture, that's in
5 issue.

6 These titles and declarations, that's in issue.

7 Two files that had some comments that were the same
8 and two files that had nine lines of code called range check.

9 So that's the story on the 37 Application Program
10 Interfaces. Those are things that you should be paying a
11 little extra attention to, though you must pay attention to
12 everything in the case.

13 Now, beyond the 37 I will just say one last sentence.
14 I believe there are eight additional files that Oracle claims
15 that are word-for-word copied from its copyrighted materials.

16 Now, this is not the final word. What I have just
17 told you is subject to changing events, the way the evidence
18 comes in. And nothing that I have said to you is evidence.
19 Nothing. What I have said to you is simply a heads-up to try
20 to help you, you being brand new to this whole case. And I
21 know you're over there doing your best to try to understand it.
22 What I'm trying to do is give you the benefit of what I have
23 learned are the issues between these two sides.

24 I'm in no way suggesting to you which way you ought
25 to come out. That would be entirely up to you. I'm not saying

1 who is right and I'm not saying who is wrong. I'm just trying
2 to help you understand the issues that you will have to look at
3 when we get a couple weeks down the road.

4 All right? Now, one thing that you can do over there
5 if you -- as you go along, if you are confused about something,
6 I encourage you to write out a note and at the next break you
7 give it to Dawn, and Dawn will give it to me, and I'll give it
8 to the lawyers. Then the lawyers might be able to work --
9 answer your question through one of the witnesses. So you're
10 free to do that. I want you to know you are -- you're not only
11 free, I encourage it. If it's something you feel would help
12 you understand the case better, just write it out and then the
13 lawyers will address it in due course.

14 All right. So the lawyers want to add or subtract
15 anything from my summary?

16 **MR. BOIES:** No, your Honor.

17 **MR. VAN NEST:** No, your Honor.

18 **THE COURT:** All right. Good. Thank you.

19 We can bring the witness back in.

20 (Brief pause.)

21 **THE COURT:** Mr. Boies, while we're waiting, can you
22 give us a heads-up of how much longer you have on direct?

23 **MR. BOIES:** I would think 30 to 40 minutes, something
24 like that.

25 **THE COURT:** Any stipulations you want to read to the

1 jury while we're waiting?

2 **MR. BOIES:** I don't think we have those ready, your
3 Honor.

4 (Mr. Larry Page enters the courtroom.)

5 **THE COURT:** So, Mr. Page, welcome. Please have a
6 seat. Make yourself comfortable. The microphone needs to be
7 about this close. Please have a seat. You can move it back.
8 It moves all around.

9 And I remind you that you're still under oath. All
10 right?

11 **THE WITNESS:** Yes.

12 **THE COURT:** Mr. Boies?

13 **LARRY PAGE,**

14 called as an adverse witness for the Defendant herein, having
15 been previously sworn, resumed the stand and testified further
16 as follows:

17 **CROSS-EXAMINATION RESUMED**

18 **BY MR. BOIES:**

19 **Q.** Good morning, Mr. Page.

20 **A.** Good morning.

21 **Q.** Yesterday we were talking about the issue of certain
22 claims that Oracle has made that Google had engaged in the
23 literal copying of certain copyrightable material from Sun and
24 Oracle.

25 Do you recall that subject generally?

1 A. Yes, of course.

2 Q. All right. Now, let me ask it this way: Would it have
3 been a violation of Google policy for Google engineers to copy
4 the copyrighted material of other companies?

5 A. Again, as I said yesterday, I think we -- we did nothing
6 wrong and we really looked carefully. I imagine that whatever
7 process would be used for clean room implementation we were
8 very careful about what information we used and did not use,
9 which is the definition of what a clean room is.

10 Q. My question, I think is a "yes" or "no" question. Is
11 whether it is a violation of Google policy for Google engineers
12 to copy the copyrighted material of other companies?

13 A. I already told you I wasn't familiar with the details of
14 how we would operate a clean room.

15 THE COURT: He's not asking that.

16 Does Google have a policy about whether or not it's
17 okay to copy somebody else's copyrighted materials?

18 THE WITNESS: I think that -- I'm not aware of any
19 such policy. I think we do a lot to respect intellectual
20 property. And in our core business on search and other things,
21 obviously, we search lots of copyrighted material and we
22 provide snippets and other things. So that seems like a pretty
23 complex question.

24 THE COURT: All right. So that's the answer. I
25 think the witness has answered the question.

1 **MR. BOIES:** Thank you, your Honor.

2 **BY MR. BOIES:**

3 **Q.** Did you ever ask anyone to investigate whether or not
4 Google engineers had copied Sun or Oracle copyrighted
5 materials?

6 **A.** I don't recall any such asking of people.

7 **Q.** Okay. Was anyone at Google ever disciplined in any way
8 for copying any Sun or Oracle copyrighted materials?

9 **A.** I'm not aware of any, any such action.

10 **Q.** Let me --

11 **MR. BOIES:** May I approach the witness, your Honor?

12 **THE COURT:** Yes.

13 (Whereupon, document was tendered
14 to the witness.)

15 **MR. BOIES:** Let me hand had you Trial Exhibits 1
16 and 2.

17 **MR. VAN NEST:** Excuse me. What's the number?

18 **MR. BOIES:** 1 and 2.

19 **MR. BOIES:** Exhibit 1 -- and perhaps we can publish
20 that -- was admitted in evidence.

21 (Document displayed)

22 **Q.** This was a document that you previously identified that as
23 a document that had been presented in July of 2005. And it was
24 presented to the top executives of Google; correct, sir?

25 **A.** Yeah, that's what I believe.

1 Q. And if you look at the next to last page, Page 9 of 10 of
2 the exhibit?

3 (Witness complied.)

4 Q. There was the statement: "Must take license from Sun."

5 Do you see that?

6 A. Yes, I see that.

7 Q. Now, this was in July of 2005. And subsequent to July of
8 2005 Google attempted to negotiate a license from Sun, correct?

9 A. I don't remember the details of when we were not or not
10 negotiating with Sun. It seemed like it went on a long time.

11 MR. BOIES: May I approach the witness, your Honor?

12 THE COURT: Yes.

13 (Whereupon, document was tendered
14 to the witness.)

15 MR. BOIES: I'm handing the witness Exhibit 7, which
16 I would offer as a party admission.

17 THE COURT: Any objection to 7?

18 MR. VAN NEST: It's in evidence, your Honor.

19 THE COURT: 7 is already in evidence. All right.

20 MR. BOIES: Thank you.

21 MR. BOIES: And if we could publish the email from
22 Mr. Rubin to Mr. Page?

23 (Document displayed)

24 BY MR. BOIES:

25 Q. This is an October 11, 2005 email to you from Mr. Rubin,

1 correct?

2 **A.** Yeah. There's a thread of emails here, but the bottom of
3 it is an email to me, yes.

4 **Q.** And the second paragraph Mr. Rubin writes:

5 "My proposal is that we take a license" --

6 And that's a license from Sun, correct?

7 **A.** That's what's written here, yes.

8 **Q.** (As read)

9 "My proposal is that we take a license from
10 Sun that specifically grants the right to us
11 to Open Source our product. We'll pay Sun
12 for the license" -- do you see that -- "and
13 the TCK."

14 And you know what a TCK is, do you not, sir?

15 **A.** That's some sort of Java testing thing, I think.

16 **Q.** And that is a Test Compatibility Kit that is designed to
17 assure that what you prepared or what Google prepared or what
18 somebody prepared is compatible with standard Java, correct?

19 **A.** My understanding is it does that and, also, generally
20 collects revenue for Sun. So it does many things, but -- yeah,
21 I think this is in the context of us negotiating with Sun for
22 their technology. The TCK is part of their technology.

23 **Q.** I agree that TCK is our way that Sun and Oracle make
24 money, but they are also a way in which they assure the
25 compatibility of versions of Java that are developed; correct,

1 sir?

2 **A.** That's correct.

3 **Q.** Okay. And the next sentence says:

4 "Before we release our product, the Open
5 Source community will make sure our JVM
6 passes all TCK certification tests so that we
7 don't create fragmentation."

8 Do you see that?

9 **A.** I see that.

10 **Q.** And you knew in 2005 that Sun wanted to avoid
11 fragmentation of Java, correct?

12 **A.** It's hard for me to speculate what Sun -- what Sun's
13 priorities were or what was important to them. It wouldn't
14 surprise me.

15 **Q.** Well, is it your testimony that you would have to
16 speculate to know whether Sun wanted to avoid fragmentation of
17 Java?

18 **A.** I think there are different editions of Java. There are
19 mobile editions or whatever.

20 I think that Java is a complex thing involving many,
21 many different things. So it's hard for me to speculate,
22 again, on what Sun -- what Sun's priorities were.

23 **Q.** Is it your testimony that you can't tell me without
24 speculating whether Sun wanted to avoid fragmentation of Java?
25 Is that your testimony?

1 **A.** No. I'm stating that we, obviously, were working on a
2 mobile edition of Java which, as I testified previously, was
3 causing a lot of problems. Like, we couldn't develop software
4 for the Java that existed. We had a closet full of 100 phones
5 that all worked different.

6 And I think Sun, and now Oracle, you know, needed
7 something that was -- actually worked. And so, obviously,
8 that's not the same thing. So that's fragmentation in a sense,
9 but actually it's something that needs to work. So it's kind
10 of hard to answer that question.

11 **Q.** Let me try to ask it this way. And this is a "yes" or
12 "no" question, Mr. Page.

13 Do you, from your own personal knowledge and your
14 experience in the industry, know that Sun wanted to avoid
15 fragmentation of the Java Platform?

16 **A.** I think that they wanted to control the Java Platform.

17 **THE COURT:** No. You can answer that question "yes"
18 or "no," please. You can say either "yes" or "no" and then
19 give your explanation, or you can say "I don't know." But
20 you've got to say "yes," "no," or "I don't know" and then you
21 can have one sentence of explanation.

22 **THE WITNESS:** All right. Sorry.

23 **A.** Repeat the exact question?

24 **BY MR. BOIES:**

25 **Q.** I'll try to.

1 Do you know, sir, from your own personal experience
2 in the industry that Sun wanted to avoid fragmentation of the
3 Java Platform.

4 **A.** Now or previously?

5 **Q.** Let me break it up.

6 Did you know from your own personal experience in the
7 industry, in 2005, that Sun wanted to avoid fragmentation of
8 the Java Platform?

9 **A.** Yeah. I mean, yes. Subject to the control and the other
10 things I mentioned.

11 **Q.** And did you know that in 2006 as well, sir?

12 **A.** I don't remember any difference between 2005 and '06,
13 seven years ago.

14 **Q.** Do you know that that was true in 2006, 2007, 2008, 2009,
15 2010, 2011, and today in each of those years, and including
16 today, Sun wanted to avoid fragmentation of the Java Platform?
17 Do you know that, sir?

18 **A.** I'm sure, yes. You know --

19 **Q.** Okay. Now, let me talk about this license negotiation.

20 You've got periodic reports of what was happening in
21 Sun's and Google's license negotiations; correct, sir?

22 **A.** Periodically I feel like I was informed by somebody.

23 **Q.** And you played a particular role with respect to Android;
24 did you not, sir?

25 **A.** I think I was a big proponent of doing the Android

1 acquisition.

2 **Q.** And, indeed, you were the -- what is called within Google
3 the "executive champion" of the Android acquisition; correct,
4 sir?

5 **A.** Yeah. We require an acquisition to have a supporter, and
6 I was listed as that supporter.

7 **MR. BOIES:** May I approach the witness, your Honor?

8 **THE COURT:** Yes.

9 **MR. BOIES:** Handing the witness Trial Exhibits 431
10 and 432.

11 (Whereupon, documents were tendered
12 to the witness.)

13 **MR. BOIES:** Each of which I would offer as party
14 admissions.

15 **THE COURT:** Any objection?

16 **MR. VAN NEST:** Objection, your Honor. 403.

17 **THE COURT:** May I see copies?

18 (Whereupon, documents were tendered
19 to the Court.)

20 **THE COURT:** Well, the 403 objection is denied as to
21 431.

22 **MR. VAN NEST:** Your Honor?

23 **THE COURT:** Yes.

24 **MR. VAN NEST:** May I be heard briefly on that?

25 **THE COURT:** Yes.

1 **MR. VAN NEST:** It's a -- 431 is really a Phase 3
2 issue not a Phase 1 issue. And it relates to some of our
3 earlier objections about numbers being thrown around. I note
4 he's not even on the exhibit.

5 **MR. BOIES:** I believe he is, if you look at the
6 bottom. But --

7 **THE COURT:** Is that the point of this document, is to
8 put big numbers out there?

9 **MR. BOIES:** No, your Honor. This document was talked
10 about specifically. This document was raised by counsel to the
11 Court. The Court denied the objection. This is exactly the
12 same document.

13 **THE COURT:** I'm going to let you use the document,
14 but if it goes where it should not go, then I will interrupt
15 you.

16 But the witness may not know anything about the
17 document. You've still got to lay foundation.

18 So subject to foundation being laid, I'll let you use
19 the documents.

20 **MR. BOIES:** Thank you, your Honor.

21 **THE COURT:** But the 403 objection is overruled, but
22 the foundation objection has not been ruled on. So you've got
23 to lay a foundation.

24 **MR. BOIES:** Okay.
25

1 **MR. BOIES:** And do I understand that 432 is admitted?

2 **THE COURT:** Neither are admitted yet. You still have
3 to lay the foundation, but the objection based on 403 is
4 overruled.

5 **BY MR. BOIES:**

6 **Q.** Let me ask you to look at Exhibit 432 first.

7 (Witness complied.)

8 **Q.** Exhibit 432 is --

9 **MR. VAN NEST:** Excuse me, your Honor. This should
10 not be published to the jury at this point.

11 **MR. BOIES:** It's not being published. Counsel is
12 entitled to establish what the document is. That much can be
13 done.

14 Go ahead.

15 **BY MR. BOIES:**

16 **Q.** This was a presentation in April of 2005 to the EMG;
17 correct, sir?

18 **A.** Sorry. Let me read it for a minute.

19 (Brief pause.)

20 **THE COURT:** It's not coming -- I don't want it to be
21 in the jury box yet. Dawn, is it just court and counsel?

22 **THE CLERK:** Correct.

23 **THE COURT:** Okay. Mr. Page, do you know what the
24 document is or not?

25 **THE WITNESS:** It's something about -- the email chain

1 seems somewhat random. The --

2 **THE COURT:** Do you know what it is or not?

3 **THE WITNESS:** I mean, I -- I don't recall it. It
4 looks like a presentation that would have been given to the
5 executive group, but this doesn't look necessarily like the
6 right version of it.

7 **THE COURT:** There is not enough foundation for it to
8 be admitted at this time.

9 **MR. BOIES:** May I be heard, your Honor, on that just
10 briefly or not?

11 **THE COURT:** Yes. Go ahead.

12 **MR. BOIES:** There is no question of the authenticity
13 of this document. The authenticity is not objected to.

14 This is directed to the EMG. He's on the EMG. It's
15 the executive management group. It's the very top executives
16 of Google.

17 **THE COURT:** Is there an objection or not?

18 **MR. VAN NEST:** There is.

19 **THE COURT:** What is the objection?

20 **MR. VAN NEST:** Lack of foundation.

21 **THE COURT:** I'm sustaining that. You've got to get
22 it in through a witness who can tell us what it is, unless you
23 want to put a young lawyer from your law firm on the stand that
24 says where this document came from, that the other side
25 produced it and so forth.

1 But right now I'm not going to suspend the Rules of
2 Evidence just because you believe it was produced by Google.
3 Maybe it was, but that's not been proven yet.

4 **MR. BOIES:** Your Honor, could I have --

5 **THE COURT:** The witness says it looks like a
6 goofed-up document.

7 **MR. BOIES:** Your Honor, they don't object that it was
8 produced by Google. That's not their objection.

9 **THE COURT:** The objection is being made that there is
10 no foundation.

11 **MR. BOIES:** Okay.

12 **THE COURT:** I'm sustaining that. We're going to do
13 it the right way.

14 The right way is if this witness can't identify it we
15 will bring this witness back after some other witness has
16 identified it and then you can ask your questions of Mr. Page
17 about the document since he's unable to identify it.

18 **MR. BOIES:** Thank you, your Honor. We will proceed
19 that way.

20 **BY MR. BOIES:**

21 **Q.** Let me ask you to look at Exhibit 431.

22 (Witness complied.)

23 **Q.** And I would direct your attention particularly to the
24 bottom of the page, of the first page of the document where
25 there is an email of October 11th, 2010.

1 Do you see that?

2 A. Yes.

3 Q. And it says it is copying "theoc." Do you see that?

4 A. Yes.

5 Q. And what is "theoc"?

6 A. Theoc is sort of the major executive management group at
7 Google.

8 Q. And it is being copied in preparation for the board
9 meeting. Do you see that?

10 A. Yeah. I can read the document.

11 Q. And the board meeting is the Board of Directors meeting;
12 correct, sir?

13 A. I think that's -- I think that's what they mean, why.

14 Q. And if you look at the next two pages.

15 (Witness complied.)

16 Q. These were pages that were produced and presented to the
17 Board of Directors of Google, of which you are a member;
18 correct, sir?

19 A. I don't recall it, but I assume so.

20 MR. BOIES: Your Honor, I would offer Exhibit 431.

21 THE COURT: Any objection?

22 MR. VAN NEST: Objection, your Honor. Still lacks
23 foundation. The witness says he doesn't recall.

24 THE COURT: All right. From the -- whether you
25 recall or not, from the form of the document, just from the way

1 it looks, does it look like something that was produced by
2 Google?

3 **THE WITNESS:** Yeah. No, it was definitely produced
4 by Google.

5 Let me read the email thread a little bit and try to
6 understand whether it was the right version and such.

7 **THE COURT:** Take your time.

8 (Brief pause.)

9 **A.** I don't think it's clear from this this was used. I mean,
10 it says:

11 "I had not gotten any response from Andy on
12 the Android talking points I sent to him.
13 (You said you had talked to him in Dublin and
14 gotten a good set of remarks), so this slide
15 may be useful for that."

16 I mean, that's -- that's --

17 **THE COURT:** All right. There is not sufficient
18 foundation to allow this document into evidence yet. So the
19 objection is sustained.

20 **BY MR. BOIES:**

21 **Q.** You believe that Android was a critical asset for Google;
22 correct, sir?

23 **A.** I believe Google -- or Android was a very important thing
24 for Google. I wouldn't say it's critical.

25 **Q.** You would not say it was critical?

1 **A.** I feel like we're splitting hairs here, but in general I
2 would say that we work hard to get our products out to our
3 users and get distribution for those products. We have had
4 challenges in getting people products on wireless, on their
5 phones, and so we look for ways to solve that problem. And I
6 think it's important, very important for us to solve that
7 problem. There are very many different ways we can do that.

8 **Q.** You're a member of the Google Board of Directors, are you
9 not, sir?

10 **A.** Absolutely.

11 **Q.** Was the Google Board of Directors told that Android was a
12 critical asset for Google?

13 **A.** I mean, that wouldn't surprise me, but I'm not sure, like
14 I said, I would agree with that.

15 **Q.** Let me ask you now. You have Exhibit 2 in front of you,
16 do you not?

17 **A.** Sorry. Which one was 2?

18 **Q.** It's in the manila folder that has Trial Exhibit 2 on it.

19 **THE COURT:** Why don't you go up and help the witness?

20 **A.** I have got it. I've got it. Thank you.

21 **BY MR. BOIES:**

22 **Q.** Now, this is a document that you personally received,
23 correct?

24 **A.** That's correct.

25 **MR. BOIES:** And I would offer that exhibit?

1 **THE COURT:** 2 is already in evidence.

2 **MR. BOIES:** Thank you, your Honor.

3 **THE COURT:** It may be shown to the jury.

4 (Document displayed)

5 **BY MR. BOIES:**

6 **Q.** Now this is dated July 26, 2005; correct sir?

7 **A.** That's what it looks like, yeah.

8 **Q.** And at the very bottom it talks about the Sun negotiations
9 concerning Java. Do you see that?

10 **A.** That says --

11 **Q.** The very bottom line.

12 **A.** Very bottom line says:

13 "Action to follow up with Sun negotiations
14 regarding open sourcing Java."

15 **Q.** Right. And do you remember telling me yesterday that you
16 didn't recall Mr. Tim Lindholm?

17 **A.** I said I -- you know, I believed based on this that it's
18 somebody who works for us, but I didn't recall him
19 particularly, no.

20 **Q.** And that you did not recall giving him any directions; do
21 you recall that?

22 **A.** Yeah. No, I didn't recall that.

23 **Q.** Now, the "Tim" that is referenced here in this email that
24 you received in 2005, that was Mr. Tim Lindholm, correct?

25 **A.** I mean, I'm not sure which Tim it would be.

1 Q. Did you know at the time you received this email?

2 A. I mean, I don't know that I read this carefully. I don't
3 recall.

4 Q. Let me ask you to look at Trial Exhibit 6.

5 MR. BOIES: May I approach, your Honor?

6 THE COURT: You may.

7 (Whereupon, document was tendered
8 to the witness.)

9 BY PLAINTIFF'S ATTORNEY:

10 Q. Is this a document that you have seen before, sir?

11 (Brief pause.)

12 A. I think so.

13 MR. BOIES: Your Honor, I would offer Trial
14 Exhibit 6.

15 THE COURT: Any objection?

16 MR. VAN NEST: No objection, your Honor.

17 THE COURT: 6 is received.

18 (Trial Exhibit 6 received
19 in evidence)

20 MR. BOIES: May I publish the first page?

21 THE COURT: Yes.

22 (Document displayed)

23 BY MR. BOIES:

24 Q. This is dated September 6, 2005; correct sir? And it's
25 from Mr. Rubin to the EMG. That includes you; correct, sir?

1 A. That's the email here.

2 Q. And a copy to Mr. Tim Lindholm, correct?

3 A. That's on the email, yeah.

4 Q. And if you turn to Page 4 of 25 of the exhibit...

5 (Document displayed)

6 Q. ...this shows that this is a report on project Android as
7 of August of 2005; correct, sir?

8 A. Which page? Page 5, you said?

9 Q. August of 2005.

10 THE COURT: How far into the document?

11 MR. BOIES: Page 4 of 25. The pages are numbered at
12 the bottom left-hand corner.

13 A. On the first page it says August 2005, Page 4 -- oh, I
14 see. I'm looking at different numbers. There are two sets of
15 page numbers.

16 BY MR. BOIES:

17 Q. Are we on the same page now?

18 A. Yes.

19 Q. Good. Now, if you turn to Page 7 of 25...

20 (Document displayed)

21 Q. ...you see Mr. Lindholm listed there as one of the project
22 advisors?

23 A. Yeah, I see that.

24 Q. Let me now ask you to look at Trial Exhibit 10, which is
25 not in evidence.

1 (Whereupon, document was tendered
2 to the witness.)

3 **MR. BOIES:** Pursuant to the discussion with counsel,
4 I would ask to publish to the jury at this time.

5 **THE COURT:** This exhibit is not yet in evidence, but
6 because the witness who will sponsor this is not yet here and
7 the Court and counsel have gone over this, we will allow this
8 document to be shown to the jury, subject to it being connected
9 up.

10 By that I mean that Oracle gets it into evidence
11 through some other witness, but for now the jury will be
12 allowed to see it so that they can follow the testimony.

13 So Exhibit No. 10 not yet in evidence, but it will be
14 shown to the jury.

15 (Document displayed)

16 **BY MR. BOIES:**

17 **Q.** Now, this is an email from Mr. Lindholm to Mr. Rubin with
18 a copy to Mr. Grove dated August 6, 2010.

19 Have you ever seen this document before, sir?

20 **A.** I don't recall.

21 **Q.** Now, I would like to direct your attention to the second
22 paragraph that says:

23 "What we've actually been asked to do (by
24 Larry and Sergei)..."

25 Do you see that?

1 A. Yeah.

2 Q. That's a reference to you as Larry, and to Sergey as the
3 other cofounder of Google; correct, sir?

4 A. Yeah. Sergey is misspelled but, yeah.

5 (Laughter)

6 Q. It says.

7 "What we've been asked to do by Larry and
8 Sergey is investigate what technical
9 alternatives exist to Java for Android
10 Android and Chrome."

11 Do you see that?

12 A. I can read the document, yes.

13 Q. Does that refresh your recollection that you knew who
14 Mr. Lindholm was and, in fact, asked him to investigate what
15 technical alternatives existed to Java for Android in or about
16 August of 2010?

17 A. No. I mean, it doesn't refresh my recollection. Sounds
18 like Tim was somebody who was assigned to do this, probably by
19 Mr. Rubin, I would guess.

20 Q. And at the end of that he says:

21 "We conclude that we need to negotiate a
22 license for Java under the terms we need."

23 Do you see that?

24 A. Yeah, I can read that.

25 Q. And were you told in or about August of 2010 that

1 Mr. Lindholm or other people had concluded that Google needed
2 to negotiate a license for Java?

3 **A.** I think there's free Java, and there's the Java that's
4 Sun's technology. I think the reason we negotiated with Sun
5 for so long was to try to get a license to their technology.

6 **MR. BOIES:** Your Honor, may I ask the Court to ask
7 the witness to be responsive to the question.

8 **THE COURT:** The question was:

9 "Were you told in or about August of 2010
10 that Mr. Lindholm or other people had
11 concluded that Google needed to negotiate a
12 license for Java?"

13 That's either yes, no, or, I don't remember.

14 **THE WITNESS:** Uhm, I don't recall, uhm, at that time.

15 **BY MR. BOIES:**

16 **Q.** You do know that Google never got a license from Sun or
17 Oracle for Java; correct, sir?

18 **A.** Uhm, I know that we worked hard to negotiate a business
19 partnership what Java.

20 **MR. BOIES:** May I ask that the witness be asked just
21 to respond to the question.

22 **THE COURT:** It is important that you try to -- most
23 of the questions are yes or no. And you should try to answer
24 it in that spirit. And so you must do that.

25 So that's a yes or no. Is it true that you never got

1 a license?

2 **THE WITNESS:** Uhm, I'm not sure whether we got no
3 license to anything or ...

4 **THE COURT:** Ask the question again. I didn't do a
5 good job on the question.

6 **BY MR. BOIES:**

7 **Q.** Did Sun ever get a license -- excuse me.

8 Did Google ever get a license from Sun or Oracle for
9 Java?

10 **A.** Uhm, I don't -- I don't think that we did, no.

11 **Q.** Now, you are aware that Google uses certain Sun or Oracle
12 APIs in Android, correct?

13 **A.** Yeah, I'm aware that we use APIs, Java APIs, in Android.

14 **Q.** And you are aware that Sun includes those APIs, or some of
15 them, in what it copyrights; correct, sir?

16 **A.** I have no idea what Sun copyrights or not.

17 **Q.** Did you ever ask anyone whether the APIs that you're using
18 in Android for Java were copyrighted by Sun?

19 **A.** I don't recall.

20 **Q.** Google copyrights its APIs; correct, sir?

21 **A.** I'm not sure whether we do or not.

22 **Q.** Are you sure whether or not Google copyrights its Android
23 APIs?

24 **A.** Uhm, I'm not sure. I think that things are copyrighted by
25 default. I think everything you write is copyrighted by

1 default, but I'm not a lawyer.

2 Q. Does Google tell the public that its intellectual property
3 and its copyrights are very valuable to it?

4 A. Uhm, I mean, Google's a company based on intellectual
5 property.

6 Q. And the way you protect intellectual property is, at least
7 in significant part, through copyrights; correct, sir?

8 A. Uhm, that's one of the, you know, major intellectual
9 property protections.

10 Q. You are aware that many companies take licenses from Sun
11 and now Oracle to use Java, correct?

12 A. Uhm, yes.

13 Q. And are you aware of any company, other than Google, that
14 uses Java APIs, that does not take a license from Sun or
15 Oracle?

16 A. I mean, I'm not an expert on that. I know that IBM has
17 had a long and tortious relationship with Sun over Java. And
18 I'm not sure what the status of their, you know, API use, or
19 whatever, is over time.

20 Q. Is it your testimony that you think IBM does not have a
21 license from Oracle or Sun?

22 A. Sorry. Apache Harmony, I don't know, has some
23 relationship with IBM, was developed with them. I don't know
24 the history of it very accurately. But it was developed as an
25 open source project. I don't know what their license is, but

1 it wouldn't surprise me if they didn't.

2 **Q.** Let me ask the question as directly as I can.

3 Can you name a single company that uses Java APIs
4 that has not taken a license from Sun or Oracle, except for
5 Google?

6 **A.** As I said, I'm not an expert on that, and I already said
7 that I didn't.

8 **MR. BOIES:** Your Honor, I have no more questions.

9 **THE COURT:** Cross-examination -- or at least
10 examination by Mr. Van Nest.

11 **MR. VAN NEST:** May I proceed, Your Honor?

12 **THE COURT:** You may.

13 **REDIRECT EXAMINATION**

14 **BY MR. VAN NEST:**

15 **Q.** Good morning, Mr. Page. How are you?

16 **A.** Good.

17 **Q.** Welcome back.

18 You were asked a series of questions about various
19 e-mails in the process of your consideration of the Android
20 project, and I want to try to give the jury a little context
21 for those, so back up a little bit.

22 What was it -- why was Google setting out, in the
23 first place, to create a smart phone platform? What was the
24 goal?

25 **A.** I think we had been really frustrated in getting our

1 technology out to people. We had very basic software, like
2 showing photos and things, and it was almost impossible to make
3 it work. We had a closet full of other phones, a lot of which
4 ran Java. But it was almost impossible to develop for those
5 phones and to get meaningful/good software out to people.

6 It's hard to think back that seven years, but it was
7 pretty awful.

8 **Q.** What were the benefits of having such a platform available
9 to consumers?

10 **A.** I think we primarily looked at it as just providing a
11 great way to get software out to people and have it work. And,
12 you know, existing services, search and so on, and Gmail and
13 things like that. It was very, very hard in the environment
14 that existed -- which included a lot of things we are talking
15 about, Java ME, and so on -- to get that stuff to work. Just
16 didn't work.

17 **Q.** Mr. Page, were you one of the people that was an advocate
18 of acquiring the Android company and bringing Mr. Rubin on
19 board?

20 **A.** Yeah, I was really excited about having solutions to that
21 problem that would get our software and other people's software
22 really out to people, and have it work well.

23 **Q.** Now, back in the early days, back in 2005 and 2006, can
24 you tell the jury, what was Google seeking in terms of a
25 relationship with Sun?

1 **A.** I think that we really wanted to be able to use Sun's
2 technology. They had all sorts of software that had been
3 developed and, you know, as what mentioned, carrier
4 certifications and all these kinds of things.

5 And it would have really saved us a lot of time and
6 trouble to be able to use their technology, to use their -- you
7 know, all the code that they developed, and so on.

8 And when we weren't able to come to terms on having
9 that business partnership, which would involve a lot of
10 complicated things, we went down our own path and we took the
11 free Java, the Java language, and we reimplemented it
12 carefully, as was mentioned, in a clean room, and provided
13 that.

14 It certainly would have been our preference to have a
15 real deep business partnership and relationship with Sun, but
16 we were unable to really come to terms on that. And I think we
17 tried long and hard to negotiate that. We spent a lot of time
18 on it. It slowed us down a lot.

19 And, ultimately, we had to then make a big investment
20 in developing our own technology, which we think is really good
21 and works well. And the market has shown that.

22 **Q.** How would a partnership with Sun have benefited Google?

23 **A.** Like I said, I think the main benefit to us would have
24 been reduction in time to market. And I think that, you know,
25 as was mentioned, there were carrier certifications and things.

1 Obviously, those didn't matter because things like
2 the iPhone didn't have Java at all, so somehow magically got
3 into consumers' hands.

4 So I don't think that the issue of Java carrier
5 certifications is very significant in the end, but it would
6 have been a help in getting things out. It's kind of
7 irrelevant now, I think.

8 **Q.** So can you tell the jury, from your perspective, Mr. Page,
9 why were Google and Sun unable to reach agreement back in that
10 period of time?

11 **A.** Uhm, I think there are a lot of --

12 **MR. BOIES:** Objection. Foundation.

13 **THE COURT:** Sustained until foundation is shown.

14 **BY MR. VAN NEST:**

15 **Q.** Were you kept advised by your team as to the negotiations
16 between Sun and Google?

17 **MR. BOIES:** Objection.

18 **THE COURT:** Mr. Van Nest, he has to have been
19 personally present and actually remember it. Earlier in the
20 direct examination he did not have -- he didn't remember quite
21 a lot of things. So you need to show he has actual memory.

22 **BY MR. VAN NEST:**

23 **Q.** Do you remember being briefed by the Android team from
24 time to time -- I think you've testified to this the other
25 day -- on status of negotiations with Sun?

1 A. Yes.

2 Q. Was -- did that happen on a regular basis?

3 A. Uhm, I remember being appraised from time to time on it,
4 yes.

5 Q. Were you appraised when the deal failed to come together?
6 Were you updated as to the reasons why?

7 A. I remember being updated after the deal failed to come
8 together, many times.

9 Q. All right. And what -- based on your understanding --
10 just from Google's perspective, why were the parties unable to
11 reach a deal?

12 MR. BOIES: Objection still, Your Honor.

13 THE COURT: Sustained. No foundation. If he wasn't
14 in the room, he doesn't know. Unless he made the decision to
15 terminate the discussions, then he would know why he did it.

16 MR. VAN NEST: Well, let me ask him that question.

17 BY MR. VAN NEST:

18 Q. Were you one of the people that participated in deciding
19 to break off efforts to reach agreement with Sun?

20 A. I definitely participated in that, from my memory. But I
21 also say I'm not sure they've ever broken off. Continue to
22 have discussions to this day.

23 Q. Well, why don't you tell the jury from your perspective,
24 from your perspective, why, why were you satisfied in moving
25 forward in a different path back in that '05-'06 time period?

1 **A.** Uhm, I think, you know -- I don't remember exactly how
2 long stuff went on, but we tried, like I said, very, very hard
3 to negotiate with Sun over the terms of Java.

4 And I think that, ultimately, the kind of business
5 models and things we had in mind for Android, which is a very
6 open source system, were in conflict with the things I
7 mentioned. Like the TCK, where they charge money, for example,
8 just to test that you maintain compatibility, which seemed kind
9 of uhm, uhm, not a good way of proceeding, in our mind. And we
10 were unable to convince them of that and, I think, a whole
11 bunch of other issues.

12 **Q.** So once the parties failed to reach agreement, how did
13 Google proceed to develop its own platform?

14 **A.** Well, you know, we took the free part of Java and we --

15 **MR. BOIES:** Objection, Your Honor. Foundation.

16 **THE COURT:** That is true. Sustained.

17 **BY MR. VAN NEST:**

18 **Q.** Mr. Page, were you involved in discussions concerning how
19 Google would move forward in the absence of an agreement with
20 Sun?

21 **A.** I definitely remember being updated on that, yes.

22 **Q.** And was EMG, the executive committee, updated on a regular
23 basis about that?

24 **A.** I don't recall specifically, but I'm sure that they were.

25 **Q.** Tell the jury what you know about the reasons that you

1 went forward on your own, without a license or without a
2 partnership from Sun.

3 **MR. BOIES:** Objection, Your Honor.

4 **THE COURT:** Well, let me ask this question.

5 Did you make the decision to go forward on your own
6 without a license or without a partnership from Sun?

7 **THE WITNESS:** I remember that we discussed that
8 point, and that we decided to go forward.

9 **THE COURT:** No, no. Did you make the decision?

10 **THE WITNESS:** I don't recall if I specifically made
11 that decision. I think, uhm --

12 **THE COURT:** Were you -- all right. Were you present
13 in a group where a group made the decision?

14 **THE WITNESS:** I mean, I was -- I was definitely aware
15 of such decision. I don't remember the process used for it,
16 but I'm sure if I had objected I would have been part of it.

17 **THE COURT:** I don't think the foundation is
18 sufficient for him to answer the question.

19 **MR. VAN NEST:** Fair enough, Your Honor.

20 **BY MR. VAN NEST:**

21 **Q.** You were asked on cross-examination, Mr. Page, about APIs
22 and whether they were copyrighted. Did you ever ask anybody
23 whether APIs are copyrighted?

24 **A.** I don't recall ever asking anybody that.

25 **Q.** What understanding did you have back in 2005 and 2006,

1 about APIs?

2 **A.** I don't think the subject really ever came up, in my
3 recollection.

4 **Q.** Has anyone ever discussed with you back in that period of
5 time the structure, selection or organization of APIs?

6 **A.** I can't remember anything like that until very recently.

7 **Q.** Mr. Page, how many employees does Google have today?

8 **A.** I think we've got over 33,000.

9 **Q.** And I take it you attend many meetings every week?

10 **A.** Too many, yes.

11 **Q.** And meet with many employees?

12 **A.** Yes. Pretty much what I do.

13 **Q.** Can you give the jury any estimate of how many employees
14 you speak with on a weekly basis?

15 **A.** I don't know. I think during this time that was
16 represented here, we would have many meetings a week with, you
17 know, many kinds of people, not all of which I would know.

18 **MR. VAN NEST:** I have no further questions, Your
19 Honor.

20 **THE COURT:** Thank you.

21 Recross.

22 **RECROSS EXAMINATION**

23 **BY MR. BOIES:**

24 **Q.** Mr. Page, did I understand you to just tell Mr. Van Nest
25 that back in 2005 and 2006 the subject of APIs never came up?

1 A. Yeah, I don't recall that.

2 Q. You still have trial Exhibit 6 in front of you?

3 MR. BOIES: May I approach, Your Honor?

4 THE COURT: You may.

5 MR. BOIES: This has already been admitted. Now, if
6 we could put the first page of the presentation up, just to
7 remind the jury what this is.

8 (Document displayed.)

9 BY MR. BOIES:

10 Q. This is a Project Android GPS presentation, August 2005.

11 Do you recall that, Mr. Page?

12 A. Yes.

13 Q. And let me ask you to look at page 8 of 25 of the exhibit.
14 And Mr. Van Nest asked you how Google benefited from Android.
15 Do you recall that?

16 A. I think he asked me how Google would have benefited from a
17 Sun partnership.

18 Q. Yes. And -- well, perhaps he did. I thought he asked the
19 other one, but let me ask you.

20 Was the benefit that Google was looking for from
21 Android to have more control of the user experience in built-in
22 Google apps?

23 A. I think you're referring to the slide here that says:

24 "Google benefits by having more control of
25 the user experience in built-in Google apps."

1 Q. Yes.

2 A. I think -- trying -- look at the date of when this was.
3 It's 2005. And that was pretty early on.

4 I think that was definitely one of the benefits the
5 team speculated about that they would get. And I don't
6 disagree with that as a potential benefit.

7 Q. And one of the ways that you were going to get that
8 benefit was -- if we go to the next page -- through, at the
9 bottom, where it talks about:

10 "Eventually build a community force around
11 Google handset APIs and applications."

12 Do you see that, sir?

13 A. Yeah, I see that. I don't think that refers to Java,
14 though.

15 Q. This certainly refers to APIs, correct?

16 A. Yeah, but not Java APIs.

17 Q. So is it your testimony that APIs came up, but just not
18 Java APIs?

19 A. We talk about APIs, you know, every day, yeah. We didn't
20 talk about Java APIs specifically.

21 Q. Okay. So we're on common ground, did you talk about APIs
22 every day?

23 A. Maybe not every day, but --

24 Q. A lot?

25 A. Yeah.

1 Q. Okay.

2 A. We talked a lot about Java, but not specifically the API
3 part of Java, in my recollection.

4 Q. Well, sir, let me ask you, do you still have Exhibit 2 in
5 front of you?

6 A. Yes.

7 Q. Okay. And this is also in evidence, so we can perhaps
8 display that.

9 And let me ask you just to look at the very first
10 line here, where it says.

11 "Sergey: Application delivery part of APIs?"

12 A. Yeah.

13 Q. And then it says:

14 "Yes, but actual delivery is a negotiation."

15 Do you see that?

16 A. Yeah.

17 Q. Now, that's clearly Sun APIs; correct, sir?

18 A. Sorry, some?

19 Q. Sun. Sun. S-u-n. Sun's APIs?

20 A. Sorry, that's not clear to me from this -- let me look at
21 the document.

22 It's not obvious to me what that's about. It seems
23 that most of the points here are about some sort of
24 negotiation, but I have no idea if application delivery is part
25 of -- was part of their current APIs or not, or what the issues

1 around -- I mean, this looks like one of the hundred issues,
2 probably, that were discussed.

3 Q. Let's take it one step at a time.

4 First, this clearly has to do with Android, correct?

5 A. Yes.

6 Q. And it clearly has to do with Java, correct?

7 A. Yes.

8 Q. And it clearly has to do with negotiations with Sun,
9 correct?

10 A. Yes.

11 Q. And when they talk about actual delivery of the APIs being
12 a negotiation, that's a negotiation with Sun; correct, sir?

13 A. Sorry. Not actual delivery of the APIs, but application
14 delivery, and the actual delivery of those. Sorry.

15 Q. That is delivery by Sun; correct, sir?

16 A. Uhm, that's not clear to me.

17 Q. The negotiation that's referred to, that's clearly Sun,
18 correct? That's who you were negotiating with in July of 2005,
19 correct?

20 A. Yeah, I'm just not really sure what that means. I mean, I
21 think it's not obvious.

22 Q. Let's see if we can get some agreement.

23 When it talks about "negotiation," that's a
24 negotiation with Sun, correct?

25 A. It could be a technical negotiation, too.

1 Q. But --

2 A. I assume that it means negotiation with Sun, yes.

3 Q. Yes. And it's a negotiation with Sun about APIs, correct?

4 A. Yeah, but I'm not sure that has to do -- sorry. I think
5 my previous testimony I was saying that the API -- you know,
6 what's part of the APIs or not with regards to the Java
7 language was not something that we discussed.

8 I'm not suggesting we never negotiated with Sun over
9 a myriad of different components of Java and how that would
10 work and how the partnership would work. That's not what I was
11 trying to say.

12 Q. This is a negotiation with Sun about APIs; correct, sir?

13 A. I'm not even sure these APIs were part of Java. I don't
14 know if application delivery was or was not. I'm not an expert
15 on that.

16 Q. You got a copy of this in July of 2005, correct?

17 A. Not disputing that.

18 Q. What?

19 A. I'm not disputing that.

20 Q. And, indeed, these are notes of a conversation in which
21 you participated, correct?

22 A. Yeah.

23 Q. Okay. And in that conversation that you participated in
24 and is memorialized in this e-mail that you got a copy of in
25 2005, what Sergey was talking about was a negotiation with Sun

1 about APIs. That's clear; isn't it, sir?

2 **A.** Yeah.

3 **Q.** Okay.

4 **MR. BOIES:** No more questions, Your Honor.

5 **THE COURT:** Any more?

6 **MR. VAN NEST:** I have nothing further, Your Honor.

7 **THE COURT:** All right. Then may the witness -- does
8 anyone want the witness on recall, or not?

9 **MR. BOIES:** Yes, Your Honor. After we get the
10 document that --

11 **THE COURT:** Mr. Page, you'll have to come back in due
12 course, after other witnesses get those documents into
13 evidence. But counsel will give you a reasonable notice as to
14 when that will be. But for now you're free to go. Thank you
15 for coming.

16 (Witness steps down.)

17 **THE COURT:** I think it's time for a short, 15-minute
18 break for the jury before we go to the next witness. Remember
19 the admonition. No talking about the case. And we'll see you
20 back here in a few minutes.

21 **THE CLERK:** All rise.

22 (Jury out at 9:19 a.m.)

23 **THE COURT:** Please be seated. Any issues for the
24 Court?

25 **MR. BOIES:** No, Your Honor.

1 **MR. VAN NEST:** No, Your Honor.

2 **THE COURT:** All right. We'll take our 15 minutes, as
3 well.

4 (Recess taken from 9:20 to 9:39 a.m.)

5 **THE COURT:** Back to work. Bring in the next witness.
6 Bring in the jury and then the next witness. All right. Let's
7 do that. Please, be seated.

8 (Jury enters at 9:40 a.m.)

9 **THE COURT:** Welcome. Please be seated.
10 Mr. Norton, who will your next witness be?

11 **MR. NORTON:** The plaintiff calls Edward Screven.

12 **THE COURT:** Please come forward. Welcome.

13 **THE WITNESS:** Thank you.

14 **THE COURT:** Raise your right hand, please.

15 **EDWARD SCREVEN,**

16 called as a witness for the Plaintiff herein, having been first
17 duly sworn, was examined and testified as follows:

18 **THE WITNESS:** I do.

19 **THE COURT:** Thank you. Have a seat. See how this
20 moves around?

21 **THE WITNESS:** Okay.

22 **THE COURT:** You've got to move it so that it's that
23 close.

24 **THE WITNESS:** Is that good?

25 **THE COURT:** That's fine. What's your name?

1 **THE WITNESS:** My name is Edward Screven.

2 **THE COURT:** How do you spell that?

3 **THE WITNESS:** S-c-r-e-v, as in Victor, -e-n.

4 **THE COURT:** Screven?

5 **THE WITNESS:** Yes, sir.

6 **THE COURT:** All right. Welcome. Again, your voice
7 is soft so pull it a little closer.

8 **THE WITNESS:** All right. Is that good?

9 **THE COURT:** That's good. Thank you.

10 Go ahead, Mr. Norton.

11 **DIRECT EXAMINATION**

12 **BY MR. NORTON:**

13 **Q.** Good morning, Mr. Screven.

14 Where do you currently work?

15 **A.** I work for Oracle.

16 **Q.** And when did you start working at Oracle?

17 **A.** In 1986.

18 **Q.** Before you joined Oracle, what did you do?

19 **A.** I was a student at Carnegie Mellon University.

20 **Q.** And did you graduate from Carnegie Mellon before you
21 joined Oracle?

22 **A.** No. I studied there for four years, and then took a job
23 at Oracle.

24 **Q.** What did you study at Carnegie Mellon?

25 **A.** I studied math and computer science.

1 Q. When you first joined Oracle in 1986, what was your job
2 there?

3 A. I was a programmer in what was the very beginnings of the
4 applications division.

5 Q. How long did you continue to work as a programmer at
6 Oracle?

7 A. I worked as a programmer until the early 1990s.

8 Q. Did you have any experience as a programmer before you
9 joined Oracle?

10 A. Yes, I did. I started writing programs when I was 13,
11 actually, and had my first job writing programs when I was 16.

12 Q. About how many years of your professional career was your
13 primary responsibility to be a programmer?

14 A. Uhm, I guess that would be not counting -- actually, even
15 a time in college I worked as a programmer, so I guess that
16 would be ten years, 12 years, 13 years.

17 Q. And do you still program now?

18 A. I do.

19 Q. At some point, did your job at Oracle involve different
20 responsibilities from just programming?

21 A. Yes. In the early 1990s, I had started working for one of
22 our founders in an advanced development group. And when he
23 became ill and had to leave the company, I started working for
24 our CEO, Larry Ellison, basically as his technical staff.

25 That job eventually evolved into what I do now, which

1 is being Oracle's chief corporate architect.

2 Q. And what are your responsibilities as Oracle's chief
3 corporate architect?

4 A. As chief architect, my responsibility is to provide
5 technical direction across all of Oracle's product lines. And
6 that also means being involved in our mergers and acquisitions,
7 doing technical due diligence, making recommendations, you
8 know, to Mr. Ellison about technology.

9 Q. So as -- in your capacity as chief corporate architect,
10 are you familiar with the various technologies that Oracle uses
11 in its businesses?

12 A. Yes, I am.

13 Q. And is Java one of those technologies that you're familiar
14 with?

15 A. Yes. Java is one of the most important technologies that
16 we use in our business.

17 Q. Can you explain a little bit more how it is that you are
18 familiar with the Java technology?

19 A. Well, as you asked before, I program still, and so one of
20 the important ways I'm familiar with Java is, of course, I
21 write a lot of Java programs.

22 Now, beyond that, various business units within
23 Oracle report to me. So I'm responsible for our MySQL business
24 and our Linux business and virtualization businesses.

25 And, you know, those groups all use Java, in part, to

1 create their products. So I program in Java, and I manage
2 people who also program in Java.

3 Q. Now, the virtualization in MySQL business, the Linux
4 business, are those significant businesses to Oracle?

5 A. Yes, yes, they are.

6 Q. Now, the middleware business in particular, were you
7 involved -- could you describe for a moment what the middleware
8 business is and how it uses Java.

9 A. So middleware, generally, is sophisticated software that
10 helps enterprise -- that means companies and governments and
11 other organizations -- create applications that run on servers
12 and that often have Web user interfaces used by users, and then
13 often interact with databases to store data.

14 Now, Oracle's middleware is based almost entirely on
15 Java.

16 Q. So is the middleware business, is it written in the Java
17 language?

18 A. Yes. Almost every bit of our middleware is written in
19 Java.

20 Q. And does it use the Java APIs?

21 A. Yes, it uses the Java APIs extensively.

22 Q. And do Java applications written by other persons or other
23 companies, do those run on top of Oracle's middleware?

24 A. Yes. There are many customer applications and third-party
25 applications that use Oracle's middleware. And that means, of

1 course, they themselves are also written in Java.

2 Q. Were you involved in the decision to base Oracle's
3 technology or middleware business on Java technology?

4 A. Yes, I was.

5 Q. What was your involvement in that decision?

6 A. Well, we had had an earlier attempt at creating middleware
7 that was not based on Java, that was based on C and C++. And
8 that proved to be awkward. And so as we looked around for
9 other technologies to use to -- instead of that, Java seemed
10 like a very natural choice.

11 Q. And were there particular reasons why Oracle decided to
12 base its middleware business on Java?

13 A. Yes. So Java has some very interesting characteristics.
14 For one thing, Java is a very productive programming
15 environment.

16 So the language coupled with, you know, the APIs
17 are -- make it easy to write sophisticated programs with large
18 numbers of people involved.

19 Java has another very interesting facet, which is
20 sometimes called write once, run anywhere. And so what that
21 means is that I can write a Java program one time and then run
22 it on different platforms.

23 So that would mean something like I could run it on
24 Windows, I could run it on Mac OS. Also, I could run that
25 program on implementations of the Java runtime environment

1 provided by different vendors. So I could run my program in
2 Java provided by Oracle, or I could run my program in Java
3 provided by IBM.

4 So as a software creator, Java means that I can write
5 my program once and use it, sell it, deploy it on lots of
6 different platforms and lots of different places.

7 **Q.** With respect to the Java language itself, was one of the
8 reasons that Oracle decided to base its middleware business on
9 Java, did that have anything to do with the benefits of the
10 Java language itself?

11 **A.** Yes. Java is a very well-specified language. And part of
12 the way it's well specified is, you know, being very specific
13 about the way Java behaves independent of the platform it's
14 running on.

15 Now, that's very different than some other
16 programming languages, especially programming languages we were
17 using at the time.

18 So, for example, the C programming language back then
19 was not as well specified. So, for example, if I had an
20 integer, a number in my program, I couldn't be sure exactly how
21 large that integer would be, how many bits. You know, to use a
22 technical term, you know, a particular integer value may be
23 comprised of. So what that meant was that I, as a programmer,
24 had to often write specialized code by platform in order to
25 have my program be able to run on different platforms.

1 In Java, I didn't have to do that. Java was very
2 well specified, and it had a set of language features which --
3 which enabled me to quickly and easily write programs.

4 **Q.** Let me just make sure I have this right. When you say the
5 language is well specified, can you just explain what
6 "specified" means in this context.

7 **A.** So there is a -- there is a document called the Java
8 language specification. It's, you know, a few hundred pages
9 long. And it describes what is the syntax of the language.

10 In other words, you know, what are the key words I
11 use when I write a Java program. What order I have to put them
12 in. You know, what are the basic operations that are part of
13 the language.

14 And that document is very -- it's very precise,
15 right. And doesn't leave a lot of wiggle room for
16 implementations.

17 So that characteristic of being precise and not
18 compromising on a platform basis means that programs written in
19 Java will run the same on every platform or in every
20 implementation, as long as those implementations are compatible
21 implementations.

22 **Q.** So is the use of the Java language alone sufficient to
23 have write once, run anywhere?

24 **A.** No, it's not, actually.

25 So, it's a necessary part of write once, run

1 anywhere, but you also need APIs. So you need prebuilt Java
2 programs to provide additional functionality to the
3 application. Things like, you know, being able to talk to
4 other computers over a network, or being able to store data on
5 a disk drive.

6 You need those other prebuilt programs to run the
7 same on every platform for your application that relies on
8 those facilities to have write once, run anywhere.

9 **Q.** If I could pause here and ask you to define or explain
10 what an API is in the sense you're using it here.

11 **A.** So an API is a part of a program. So when -- if you -- if
12 you -- if you look at the prebuilt programs that are shipped by
13 Oracle with Java, and shipped by other vendors who license
14 Java, you know, they -- they -- those programs have two parts
15 to them.

16 One part is an -- is the definition of the -- of the
17 structure of the programs and the ways in which -- the ways in
18 which programmers can use those prebuilt programs.

19 The other part are a sequence of statements that
20 carry out the facilities that are part of the program.

21 So in -- I think, for example, I think if you were
22 doing something like manipulating a list, there are -- there
23 are methods of lists that say, you know, add an entry, remove
24 an entry. Right.

25 So the fact that there is such a thing as a list, the

1 fact that there is add entry and remove entry, you know, those
2 are all part of the API, you know, that is part of the Java
3 prebuilt program list.

4 Q. So is there any relationship between the API itself and
5 the -- the -- start over with that.

6 What is the relationship between the prewritten
7 programs, the class libraries, and the API specification
8 itself?

9 A. Well, the APIs in Java are actually directly embedded
10 within those prebuilt programs.

11 In Java, there is no distinction between -- between
12 creating the API and creating the code that actually implements
13 the API.

14 A Java program is described as -- by a set of text
15 files called Java files, .java files. And those .java files
16 contain a structure and key words and other kind of Java
17 language elements.

18 And some of those Java language elements are -- would
19 be deemed part of an API, and some of those Java language
20 elements would be procedural statements implementing the API.
21 But in Java, they are commingled. There is no separation
22 between them.

23 Q. So there's a separate thing or a thing called the API
24 specification; is that correct?

25 A. Well, what there is is, there is human readable documents

1 that are created, actually, by processing those Java source
2 files and extracting out, you know, that human readable form.

3 The source of truth about what the API is and what it
4 does, that is actually part of those Java source files that
5 define the Java programs.

6 Q. So does -- is the API specification, in fact, part of
7 the -- the Java program?

8 A. Yes. The API specifications are part of the Java program.

9 MR. PURCELL: Objection. Leading, Your Honor.

10 THE COURT: Well, it was leading. I'll allow it in
11 this instance.

12 Be careful not to lead. Go ahead.

13 MR. NORTON: Thank you, Your Honor.

14 BY MR. NORTON:

15 Q. Can you see from the stand this file cabinet (indicating)?

16 A. I can.

17 Q. Is this, is this an API?

18 A. No, that is not an API.

19 Q. Is this like an API?

20 A. No, that's not like an API.

21 Q. Is there any similarity between this file cabinet and an
22 API?

23 A. No, there's no similarity.

24 So, look, an API is Java language program text which
25 does two things. It gives form and shape to -- to the rest of

1 the Java program, those procedural statements. And it's --
2 informs programmers on how to use those prebuilt Java programs.

3 You know, that is a metal box. You know. It -- it
4 can -- you can put things in it. You can put folders in it.
5 You can put books in it. You could put old shoes in it.
6 Right? But it has a big difference between an API.

7 An API is part of the program. The file cabinet is
8 in no way part of what you are putting into it. It doesn't
9 affect them. It doesn't define them.

10 An API defines the programs. It gives the program
11 structure.

12 **Q.** Now, are you yourself -- do you design APIs?

13 **A.** Yes.

14 **Q.** Do you consider the designing of APIs to be a creative
15 process?

16 **A.** It is a very creative process. It's one that requires
17 insight and thought. Compared to other programming tasks, I
18 would say it is the most creative.

19 **Q.** Can you explain what it is about the process of designing
20 APIs that is creative?

21 **A.** There are two -- there are two significant aspects that a
22 person has to consider when they're designing an API. You
23 know, one is -- is what is the functionality that is required
24 by the potentially thousands and thousands of users of that
25 API. In the case of some of those Java APIs, it's millions of

1 users. Right.

2 So it's -- it takes a lot of thought to consider
3 what -- what is the vast range of programs that are going to be
4 using it? You know, what should I include within that API?
5 You know, what -- what -- how should I structure the API?

6 You know, in Java, API is not just a simple list of
7 program entry points. It's a complex web of classes that you
8 lay out and design. Right.

9 You also have to consider what is the implication for
10 the underlying implementation. Because in many ways the
11 implementation of the API is going to be very strongly affected
12 by the layout and structure of the API.

13 **Q.** Can I interrupt you for just one moment.

14 Can you explain, when you use the word
15 "implementation of the API" what you're referring to.

16 **A.** Yes. I'm referring to the additional Java program
17 language statements that appear in Java source files that are
18 not the API.

19 So, for example, I think I mentioned an example of,
20 you know, add to a list. Right. So if you looked into a Java
21 language source file that was implementing a list, and then you
22 would find -- you would find a point in that file where the add
23 to list entry point is declared. You know, that's part of the
24 API. You'd see a small number of Java language statements
25 following it which actually describe how to add it to the list.

1 So that how to add it to the list, that's the
2 implementation part. The fact that there is an add to list
3 function and what kind of information must be provided when you
4 add to the list, and what kind of information is returned when
5 you add to the list, that is all part of the API.

6 **Q.** And are those choices that are made during the designing
7 of the API, or choices that are made during the implementation
8 of the API?

9 **A.** Well, the choices of exactly what information must be
10 presented when you add to the list, whether or not there is
11 going to be a way to add to the list, what gets returned when
12 you do add to a list, that is all part of the API design
13 process.

14 The subtle thing about the API design process is
15 that, you know, you also must reflect upon what you're going to
16 do to implement that API entry point.

17 So as I'm designing an API, I have to understand that
18 even though I may not actually be providing the code to
19 implement that API entry point right away, I need to understand
20 at least what is going to be required to implement it.
21 Because, otherwise, I could create an API which is
22 unimplementable that no person could actually cause to exist,
23 or perhaps would be very slow or cumbersome to build.

24 So that is why it is so critical to think carefully,
25 you know, when you design APIs, because you have implications

1 both on hundreds, thousands, or millions of users in the
2 future, and also on programmers who are going to actually
3 provide an implementation of the API later.

4 Q. When an API is designed well, does that have any
5 implications for the productivity of the programmers who will
6 then use those specifications?

7 A. Yes. I mean, if an API is designed well, that means it
8 provides very useful functionality and it -- it's easy for
9 programmers to use.

10 And that means that programmers who then use the API
11 have to write less code themselves, and they get to take
12 advantage of useful functionality.

13 Q. Now, are you familiar with the 37 API packages that Oracle
14 asserts Google infringes?

15 A. I am.

16 Q. And how is it that you're familiar with those 37 in
17 particular?

18 A. Well, I'm generally familiar with all of the APIs that are
19 part of the Java Standard Edition. And I've seen a list that
20 was provided to me of the particular APIs for which there's an
21 assertion.

22 Q. Now, what you've described about APIs in general -- let me
23 ask specifically.

24 The design of the 37 APIs that Oracle asserts are
25 infringed, does that reflect creative design?

1 A. Yes.

2 Q. Are those APIs well designed?

3 A. Yes.

4 Q. Do you -- when you program in Java, do you use those 37
5 API packages?

6 A. Definitely.

7 Q. And do you find them to be practical?

8 A. I find --

9 MR. PURCELL: Objection, Your Honor. This is expert
10 testimony.

11 THE COURT: It is.

12 MR. NORTON: I think the question was when he
13 programs.

14 THE COURT: No more so than everything we've heard so
15 far from this witness. I mean, the entire thing is
16 specialized, specialized testimony, isn't it?

17 MR. PURCELL: I think so, Your Honor.

18 THE COURT: Well, are you going to cross-examine on
19 these points?

20 MR. PURCELL: I will.

21 THE COURT: Well, then, I'm going to let him go ahead
22 because you're going to be asking the same character of
23 questions.

24 But I am going to sustain the objection as leading.
25 You are leading this witness up and down. You must stop

1 leading your own witness, Mr. Norton.

2 **MR. NORTON:** I understand, Your Honor.

3 **BY MR. NORTON:**

4 **Q.** In order to use the Java language, must you also use APIs?

5 **A.** Well, okay. So the APIs that come standard with Java,
6 they're very useful and very productive. And I think Java
7 programmers using a compliant implementation invariably use
8 those APIs.

9 You do not, however, have to actually use the APIs
10 that come with Java. The APIs are defined independently of the
11 Java programming language. And, you know, so you could create
12 your own independent APIs, if you wish.

13 In fact, for some aspects of the standard APIs, I
14 mean, there are parties out there who have created alternate
15 implementations, you know, or totally different APIs that
16 accomplish many similar things.

17 So, for example, there are different ways to log.
18 And logging here means the program writes out information about
19 what it's doing so that system administrators can understand
20 what's happening behind the scenes.

21 There are different -- there are different APIs,
22 alternate APIs for doing mathematics. So there's built-in
23 mathematical functions within -- within the standard Java APIs,
24 but there's alternatives out there produced by -- by other
25 folks.

1 There are encryption libraries that are part of the
2 Java Standard libraries. There are alternate APIs for doing
3 encryption.

4 So, yes, it's very, very common for Java programmers
5 who use the standard APIs because they are very good. But it's
6 also possible to not use any of them.

7 Very few, very, very few of the classes that are part
8 of the Java Standard libraries are actually mentioned at all
9 within the Java language specification. And even of the ones
10 that are mentioned, almost no methods, almost no parts of the
11 actual entry points for those classes is defined.

12 So someone who is starting from the Java language
13 specification could go out and create an alternate set of APIs
14 that is totally different and totally independent of the
15 standard APIs that Oracle ships.

16 **Q.** Now, has Oracle ever redesigned the 37 APIs that are in
17 suit?

18 **A.** No, no, we have not.

19 **Q.** Is there any reason why Oracle has not done so?

20 **A.** Well, I mean, for one thing, there's no reason for us to.
21 I mean, the APIs are well designed and they're well specified.
22 They are proven over time. Millions of Java programmers use
23 them.

24 To redesign and re-create them would be a lot of
25 work. I mean, there's a lot of creativity that went into

1 designing them in the first place. Why redo all of that?

2 Right? It really makes no sense.

3 If we did redo it all then, of course, that means,
4 you know, there would be millions of Java programmers out there
5 who are -- know how to use the standard APIs as they currently
6 exist, and would have to be reeducated to use these new APIs.

7 So there's just -- there's just no reason and too
8 much expense.

9 **Q.** Is there any technical reason why Oracle would be unable
10 to come up with alternate API specifications for those 37 --

11 **A.** No, no. We definitely could come up with alternate APIs
12 than the standard ones.

13 **Q.** Were you involved in Oracle's decision in 2009 to acquire
14 Sun Microsystems?

15 **A.** Yes, I was.

16 **Q.** And can you just describe, briefly, what that involvement
17 was.

18 **A.** Well, we -- we -- the opportunity to acquire Sun came upon
19 us, and we needed to make a decision as to whether or not to
20 proceed.

21 So myself and a small number of other Oracle
22 executives performed a quick investigation by talking to Sun
23 employees and reading some of the material to try to -- try to
24 evaluate the company. My particular focus was on the products
25 and the technology.

1 Q. And did you have a position either for or against Oracle's
2 acquisition of Sun?

3 A. Yes, I was very much in favor of acquiring Sun. And for
4 me the primary reason was because of Java.

5 Q. And why was Java the reason that you were in favor? What
6 in particular about Java was the reason you were in favor of
7 the acquisition?

8 A. Oracle had very large businesses that depended on Java,
9 so, our middleware business and our applications business. And
10 so being able to acquire Sun and add Java to that -- to that
11 set of products made a huge amount of sense.

12 Java was a very valuable asset. It still is a very
13 valuable asset. I mean, to me, if all we did was get Java by
14 buying Sun, it was easily worth whatever we had to pay.

15 Q. Relative to the rest of what Oracle acquired when it
16 bought Sun, did you have a view as to how much Java was worth?
17 Without using numbers but just relative to the rest of it, how
18 important was Java in the acquisition of Sun?

19 A. Well, like I said, I mean, we picked up compelling
20 technologies when we acquired Sun. But if the only technology
21 that we were able to acquire was Java, then the purchase price
22 was worth it.

23 I mean, even if we had to throw away every other part
24 of Sun and only keep Java, it was worth paying that
25 \$7.4 billion.

1 **MR. PURCELL:** Objection, Your Honor.

2 **THE COURT:** Sustained.

3 Ladies and gentlemen, the \$7.4 billion number has
4 nothing to do with this case. Disregard it.

5 Mr. Norton, we talked about this before.

6 **MR. NORTON:** I understand, Your Honor.

7 **THE COURT:** All right. Continue.

8 **BY MR. NORTON:**

9 **Q.** Have you ever heard of the Apache Software Foundation?

10 **A.** I have. It's a nonprofit organization that is largely --
11 largely backed by IBM, that creates open source components or
12 products or projects licensed out under their Apache license.

13 **Q.** Have you ever heard of an Apache project called Harmony?

14 **A.** I have.

15 **Q.** What is or what was Harmony?

16 **A.** Harmony was an effort to create a clone of Java.

17 **Q.** Any particular version of Java?

18 **A.** I think they were based on Java version 5.

19 **Q.** And is that SE?

20 **A.** Yes. You mean the edition. Yes, it was what we call Java
21 SE, Standard Edition.

22 **Q.** Now, at some point in time did Sun itself release Java SE
23 under an open source license?

24 **A.** Yes, it did. It released something called the OpenJDK,
25 which was Java SE released under the GPL, the GNU Public

1 License, a different open source license.

2 Q. A different open source license from what, please?

3 A. I'm sorry. A different open source license than the
4 Apache license.

5 Q. When you refer to the Apache license, is that a
6 standardized form license?

7 MR. PURCELL: Objection. Leading.

8 THE COURT: Sustained.

9 BY MR. NORTON:

10 Q. What is the Apache license?

11 A. The Apache license is an open source license that was
12 created by the Apache Foundation. And all of the -- of the
13 products or components that are produced by the Apache
14 Foundation are licensed out to others under the Apache license.

15 Q. You referred, also, to the GPL license?

16 A. Yes. The GPL -- that stands for GNU Public License. That
17 is G-N-U. And that is a different open source license created
18 many years ago by the Free Software Foundation.

19 Q. Was the GPL created by Sun?

20 A. No. The GPL was not created by Sun.

21 Q. Now, after Sun released Java SE under an open source
22 license, did the Apache Harmony project continue or stop, or
23 did anything change?

24 A. It continued for some time afterwards.

25 Q. Now, at some point in time was there a disagreement

1 between Sun and Apache with respect to Harmony?

2 **A.** Yes.

3 So, the Apache Foundation, in order to release
4 Harmony, sought licenses from Sun. They sought a specification
5 license in order to release Harmony. And Sun did not want to
6 provide one to them.

7 **Q.** Do you know -- strike that.

8 When you say that Apache wanted a specification
9 license, can you explain what you mean in this context by the
10 "specification."

11 **MR. PURCELL:** Objection, Your Honor. Foundation.

12 **THE COURT:** Do you know the answer to the question?

13 **THE WITNESS:** Yes.

14 **THE COURT:** Overruled.

15 Please answer.

16 **THE WITNESS:** So, Apache sought a Java specification
17 license, basically covering what they were producing in Apache.

18 **BY MR. NORTON:**

19 **Q.** And did Sun have a position with respect to Apache's
20 request?

21 **A.** Sun was willing to grant Apache a specification license
22 and also what's called a test kit license, which is used to
23 ensure compatibility, as long as the Apache Harmony product or
24 component was -- was only available for use on desktop machines
25 or servers, not mobile devices.

1 Q. Is there a term that's used to describe that type of
2 restriction?

3 A. Yes. It's called a field of use restriction.

4 Q. At some point, did Oracle become involved in the dispute
5 between Sun and Apache?

6 A. Yes. At one point Oracle cosigned a letter that we --
7 that was sent to Sun, Jonathan Schwartz, the Sun CEO
8 specifically, encouraging Sun to grant an unencumbered license
9 to Apache.

10 MR. NORTON: May I approach the witness?

11 THE COURT: Yes, you may.

12 MR. NORTON: I'm handing the witness 2347.

13 BY MR. NORTON:

14 Q. Do you recognize Exhibit 2347, Mr. Screven?

15 A. Yes, I do.

16 Q. Can you say what it is?

17 A. It is the letter I just mentioned. It's the letter that
18 Oracle and others, other companies, sent to Sun to encourage
19 Sun to grant an unencumbered license to Apache?

20 MR. NORTON: I offer 2347.

21 MR. PURCELL: No objection.

22 THE COURT: 23 --

23 MR. NORTON: -- 47.

24 THE COURT: Is now in evidence. Go ahead.

25 (Trial Exhibit 2347 received in evidence.)

1 (Document displayed.)

2 **BY MR. NORTON:**

3 **Q.** Now, Mr. Screven, if we can see the second page of the
4 letter, do you see your name there?

5 **A.** Yes, yes, I do.

6 **Q.** And there's no formal signature, hand signature, but did
7 you effectively sign this document?

8 **A.** Yes.

9 **Q.** And did other companies sign this document, as well?

10 **A.** Yes, they did.

11 **Q.** Was one of the other companies that signed onto this
12 document Google?

13 **A.** Yes. Yes, it was.

14 **Q.** And on the document it says, Bill Coughran, vice president
15 of engineering, Google.

16 **A.** Yes, that's right.

17 **Q.** Are all of the companies that appear on this letter, as
18 signatories to this letter, did they have any involvement with
19 Java?

20 **A.** Yes, they were all very involved in Java.

21 I think most, if not all, of them were part of the
22 Java Community Process, which is a -- which is Sun, and now
23 Oracle -- organized consortium to help advance Java.

24 **Q.** Now, what did you sign this letter?

25 **A.** I think there's multiple reasons. I mean, one, one reason

1 is that even back then Sun as a company was not doing well.

2 And, you know, there was general concern that if Sun
3 began to fail as a company, then, you know, their behavior with
4 respect to Java in terms of investment or licensing could
5 become very difficult.

6 So Oracle, of course, we were wholly dependent on
7 Java. We had very large businesses that were -- that were
8 dependent on Java. And so, you know, faced with having to at
9 some point in the future negotiate with Sun on renewing our
10 Java license at a time when Sun the company may be in serious
11 jeopardy, that was something that was, frankly, frightening to
12 us.

13 And so having -- having Sun grant unencumbered
14 licenses to Apache would mean that we would have an alternate
15 source of Java technology. So we would be in a better
16 negotiating position with Sun, and certainly in a better
17 position with respect to our dependence, in general, on Java.

18 Q. Now, did Sun ever agree to Apache's request for a
19 specification license with an unencumbered TCK?

20 A. They did not.

21 Q. Did Oracle continue to pay Sun for specification licenses?

22 A. Yes, we did.

23 Q. Now, at the time that you signed this letter, did you have
24 any concerns about whether an open source Apache Harmony
25 implementation would have -- would harm Java?

1 **A.** I didn't because, you know, all of the parties who were
2 co-signers of this were very involved in Java. And, I mean, at
3 the time it seemed, you know -- frankly, it seemed
4 inconceivable that any of the parties involved in signing this
5 letter would want to do anything to harm Java or fragment Java.
6 Now, that turned out not to be the case.

7 **Q.** Just so we're clear -- refer to the timeline here -- what
8 is the date on the letter that we're discussing, Exhibit 2347?

9 **A.** It is June 22nd, 2007.

10 **Q.** All right.

11 **MR. NORTON:** May I read from the timeline, Your
12 Honor?

13 **THE COURT:** You may.

14 **BY MR. NORTON:**

15 **Q.** So November 2007, Google released the Android software
16 development kit?

17 **A.** Yes.

18 **Q.** And the date of the letter is how many months before?

19 **A.** Roughly five months before.

20 **Q.** Now, was it of any relevance to you in signing this letter
21 that Apache had asked for a TCK?

22 **A.** Yes. So Apache clearly wanted their implementation to be
23 compatible with the standard implementation of Java because
24 that's why they're asking for test kits.

25 I mean, what a test kit does is it provides a way for

1 an independent implementation of Java, to ensure that, in fact,
2 it is compatible with the standard implementation.

3 So it's a whole bunch of, basically, little programs
4 that exercise the -- the Java implementations and make sure it
5 has the correct behavior.

6 So the fact that Apache wanted test kits means they
7 wanted their Java implementation to be compatible with all the
8 other standard Java implementations.

9 Q. Now, at the time you signed the letter in June 2007, did
10 you have any knowledge that Google was developing a platform
11 that used the Java language and some but not all of the Java SE
12 APIs?

13 A. No, definitely not.

14 Q. Had you known that, would that have had any bearing on
15 your decision to sign the letter?

16 A. There's no way we would have pursued this course if we had
17 known that Google intended to fragment and fracture and fork
18 Java.

19 To be perfectly fair to Sun, they always resisted
20 granting these licenses to Apache. And, frankly, they were
21 right because they foresaw, I imagine, that granting Apache
22 licenses would lead to fragmented/forked Java implementations.

23 We did not envision that because we couldn't imagine
24 anyone who depended on Java like we did could think that that
25 would possibly be in their best interests. Apparently, Google

1 did.

2 Q. What is the status of Apache Harmony now?

3 A. It's basically shut down. It's in what Apache Foundation
4 called the attic. It just means a project that is no longer
5 being developed.

6 Q. Now, given your -- do you have any role with respect to
7 the Java Community Process as a result of your position at
8 Oracle?

9 A. Yes. The Oracle employees who are responsible for the
10 Java Community Process work for me.

11 Q. And as a result of your responsibilities in -- as chief
12 corporate architect and overseeing Oracle's role in the Java
13 Community Process, would you expect to be aware of any
14 implementations, commercial implementations of Apache Harmony?

15 A. Yes, because Apache Harmony never received a license and
16 is not compatible, they never ran the compatibility tests, then
17 any -- any meaningful implementation of Apache Harmony, any
18 meaningful use of Apache Harmony would naturally come to the
19 attention of the -- of the individuals and companies that are
20 part of the Java Community Process; and, therefore, I would be
21 aware of it.

22 Q. Are you aware of any commercial implementations of Apache
23 Harmony in the world today?

24 A. Only Android.

25 Q. What is GNU Classpath?

1 A. GNU Classpath was an effort to create a GPL-licensed
2 version of the Java class libraries that are part of J2SE.

3 Q. Did Oracle ever take a license for the GNU Classpath?

4 A. No, no. As a project, GNU Classpath was always
5 incomplete. They never implemented the whole API. They
6 never --

7 Q. I'm sorry. That was a little quick.

8 A. Too fast. I'm sorry. I'll repeat.

9 It was always incomplete. They've never fully
10 implemented the full J2SE API. They did not have a license
11 from Sun. They did not ever run the test kit. So it's of
12 absolutely no interest to Oracle as a -- as a company licensing
13 Java.

14 Q. And are you aware of any commercial implementations of GNU
15 Classpath?

16 A. No, I'm not aware of any commercial use of GNU Classpath.
17 The reason for its existence simply disappeared when Sun
18 released OpenJDK under GPL.

19 So once Sun released OpenJDK under GPL, then open
20 source programmers had a GPL version they could use.

21 Q. Now, prior to Oracle's acquisition of Sun, did Oracle have
22 any experience building applications for mobile handheld
23 devices?

24 A. Yes. Yes, we did. So we built -- we built handheld
25 applications for managing warehouses. We built handheld

1 applications for salespeople in the field. We built handheld
2 applications for service people in the field. So repairmen
3 visiting a data center to repair a computer. We built mobile
4 applications for things like e-mail.

5 Q. Prior to the acquisition of Sun, did Oracle have the
6 technical -- have any experience building a smart phone
7 platform?

8 A. We built smart phone applications and mobile device
9 applications, but we didn't have smart phone platform software.

10 Q. Now, once Oracle made the decision to acquire Sun, were
11 you involved in any efforts to investigate building a smart
12 phone platform with Java technology?

13 A. Yes. After we -- after we acquired Sun, we considered
14 whether or not we should enter the smart phone platform market
15 because we had acquired Sun, and Sun had Java. And Java was,
16 seemed to us, an excellent base for building a smart phone
17 platform.

18 Q. And were you involved in these --

19 A. Yes, yes, I was involved in discussions with our CEO Larry
20 Ellison and other -- other senior Oracle executives about the
21 prospect of entering that market.

22 Q. Did you reach any conclusion as to whether -- purely as a
23 technical matter, whether it would be possible for Oracle, with
24 Sun's Java technology, to build a smart phone platform?

25 A. Yes. We were confident that from a technology basis we

1 could build a compelling smart phone platform. However, we
2 concluded from a business perspective that it would not be a
3 profitable venture for us.

4 Q. What were the reasons -- when you say "we concluded," were
5 you part of that decision, as well?

6 A. Yes, yes.

7 Q. And what were the reasons for your decision not to go
8 forward with a Java-based smart phone?

9 A. Well, you know, when you enter a market, especially a
10 competitive market like smart phone platforms, it's important
11 to be first with a compelling advantage.

12 Our compelling advantage would have been Java. But
13 Android had already been released. Android was already out on
14 millions of devices. So Google's Android-Java clone had
15 basically foreclosed the market from us.

16 MR. NORTON: Nothing further.

17 THE COURT: Thank you. Cross-examination.

18 **CROSS EXAMINATION**

19 BY MR. PURCELL:

20 Q. Good morning, Mr. Screven.

21 A. Good morning.

22 Q. On direct examination you mentioned that there were
23 various, different editions of the Java platform, correct?

24 A. Yes.

25 Q. There is Java SE, which is Java Standard Edition, correct?

1 A. Correct.

2 Q. And Java Standard Edition, Java SE, that was the original
3 Java platform, correct?

4 A. Uhm, yeah. It grew out of what was the original Java
5 platform.

6 Q. And Java SE is designed to run on desktop computers,
7 correct?

8 A. No, I wouldn't say so. It's designed to run on any
9 platform that has sufficient computing power. And today that
10 includes servers, desktops, laptops and smart phones.

11 Q. Java SE is primarily used in desktop computers and laptop
12 computers, isn't it?

13 A. I wouldn't characterize it that way.

14 Q. Isn't there another platform called Java EE?

15 A. There is something called Java EE.

16 Q. And that other edition of Java, Java EE, that stands for
17 Java Enterprise Edition, correct?

18 A. Yes.

19 Q. And Java Enterprise Edition is primarily focused on larger
20 computing devices like servers, correct?

21 A. No, that's a mischaracterization.

22 Q. Why is that a mischaracterization?

23 A. So Java Enterprise Edition is actually additional
24 functionality. It's not a different version of Java at all.

25 Q. All right.

1 A. I'm not finished with my answer.

2 (Reporter interrupts.)

3 A. So Enterprise Edition is additional functionality. It's
4 not a different version of Java at all.

5 And that additional functionality in Enterprise
6 Edition is implemented on top of J2SE, which is wholly and
7 completely embedded in Enterprise Edition.

8 Q. By additional functionality in Java EE, you mean there are
9 additional APIs and class libraries available in JAVA EE?

10 A. Yes, there are additional APIs.

11 Q. And there are applications written for Java EE devices
12 that depend on those additional APIs that are present in EE but
13 not SE. Correct?

14 A. That is true.

15 Q. And that means that an application that is written for EE
16 and depends on those additional applications that aren't in SE
17 would not run on a device that's a Java SE device. Correct?

18 A. It would only run on that device if you put the Java EE
19 classes on that device.

20 Q. So unless the Java EE classes were put on the SE device,
21 the EE application wouldn't run on the SE device, correct?

22 A. But that's true of every computer. If I don't put the
23 Java EE classes on a server, the application won't run there
24 either.

25 Q. And there's also something, I think you mentioned, called

1 Java ME, correct, Java Micro Edition?

2 **A.** That's correct.

3 **Q.** And that is a Java edition that is designed primarily for
4 smaller devices, correct?

5 **A.** So the Java Micro Edition was a version of Java that was
6 designed to run on devices that did not have the computing
7 capacity to run full Java.

8 **Q.** Right. And because Java ME was designed for smaller
9 devices with less computing capacity, it uses a stripped-down
10 version of the APIs and class libraries, as compared to SE,
11 correct?

12 **A.** I wouldn't call it stripped down. I would call it
13 reduced.

14 **Q.** It has fewer APIs and class libraries, ME, as compared to
15 SE. Correct?

16 **A.** Yes, because those additional entry points require
17 essentially too much memory or too much CPU power --

18 (Reporter interrupts.)

19 **A.** CPU. Central processing unit.

20 -- and too much memory to run on very, very small
21 devices.

22 **Q.** And so that means that an application that's written for
23 Java SE and depends on the Java SE APIs won't necessarily run
24 on a Java ME device that doesn't have some of the Java SE APIs.
25 Correct?

1 A. That's correct.

2 Q. And then there's yet another platform, a Java platform
3 called Java Card, correct?

4 (Reporter interrupts.)

5 MR. PURCELL: Platform called Java Card.

6 THE WITNESS: C-a-r-d.

7 MR. PURCELL: I'll try to slow down.

8 BY MR. PURCELL:

9 Q. So, Mr. Screven, the question is, there's yet another Java
10 platform called Java Card, correct?

11 A. Yes.

12 Q. And that runs on yet simpler devices as compared to ME,
13 like smart cards, correct?

14 A. That's right.

15 Q. And that has yet fewer APIs and class libraries than JAVA
16 ME. Doesn't it?

17 A. That's right.

18 Q. So that means that an application written for Java Card
19 wouldn't necessarily run on a Java ME device because it
20 wouldn't have the same APIs and class libraries, correct?

21 A. I'm sorry. Could you ask that question again. I got
22 mixed up between which direction you're talking about.

23 Q. I may have gotten it backwards.

24 That means that an application written for Java ME,
25 that depends on the Java ME APIs and class libraries, wouldn't

1 necessarily run on a Java Card device because it doesn't have
2 all those APIs and class libraries. Correct?

3 A. That's right.

4 Q. So, essentially, whether an application runs on a
5 particular Java device depends on which edition of Java that
6 application is written for, correct?

7 A. I would say whether or not a given application runs in a
8 given Java environment depends on the APIs that are present.

9 Q. And there are APIs -- strike that.

10 There are different APIs and class libraries present
11 in each of the different four environments we just discussed.
12 Correct?

13 A. That's right.

14 Q. Differences in APIs between Java EE, Java SE, Java ME, and
15 Java Card. Correct?

16 A. I think the difference between Java EE and Java SE is
17 different than the difference between Java SE and Java ME.

18 In the case of Java EE and Java SE, all of the Java
19 SE --

20 Q. Mr. Screven, my question was just, there are
21 differences --

22 A. Your question doesn't make sense.

23 Q. Mr. Screven, my question -- and you can say it doesn't
24 make sense, if you want -- there are differences in the APIs
25 between Java EE, Java SE, Java ME, and Java Card, correct?

1 A. There are differences, but those difference are not the
2 same depending on which particular pair of editions you're
3 talking about.

4 Q. Fair enough. But, nonetheless, despite the fact that the
5 differences may not be the same, there are differences in the
6 APIs among all four of those platforms. Correct?

7 A. So for in the case of Java SE and Java EE, for, let's say,
8 the list API that we've talked about now, the list API is the
9 same on Java SE and Java EE. It's exactly the same. There is
10 no difference at all.

11 Now, it is true that there's additional libraries,
12 additional APIs that are part of Java EE. But there are no
13 differences between what a list is on SE and a list is on EE.

14 Now, I don't know, actually, a particular list, but
15 there are some Java SE APIs that have -- that are simpler. You
16 know, the same classes exist on Java ME, but they have some
17 entry points that have been removed. And that is because --

18 Q. Mr. Screven --

19 A. -- the computer environments have less power.

20 Q. Mr. Screven, whether or not an application will run on a
21 particular Java device depends on which version of Java it is
22 written for. Correct?

23 A. Well, yes, that's right.

24 Q. So that's not write once, run anywhere; is it?

25 A. Actually, I think it is write once, run anywhere.

1 Q. How can it be write once, run anywhere, Mr. Screven, if a
2 particular application written for Java EE won't run on a
3 Java ME device?

4 A. Yes, but an application that's written to work against
5 Java EE runs on every computer that runs Java EE, whether or
6 not it's provided by Oracle or another vendor.

7 An application that's designed to run on Java SE runs
8 on every computer running Java SE, whether the Java
9 implementation was provided by Oracle or not.

10 An application that was written to run on Java ME
11 runs on every device that runs the Java ME, whether it was
12 written by Oracle or not.

13 An application that's written to run on Java Card
14 runs on every device running Java Card, whether that
15 implementation was created by Oracle or not.

16 So write once, run anywhere exists across every one
17 of those editions because exactly the same processes are
18 followed across every one of those editions.

19 Q. But write once, run anywhere doesn't work across the
20 different Java platforms; does it?

21 A. It works upwardly. So if I take an application that I
22 wrote against Java SE, I can run it directly in Java EE. But
23 if I depend on Java EE APIs, that's right, it doesn't work
24 unless the Java EE APIs are there.

25 Q. And if you're taking an application that was written for

1 Java SE, you wouldn't be able to run it on a smart phone that's
2 running Java ME; would you?

3 **A.** You would not. However, today smart phones actually are
4 capable of running Java SE, and so phone manufacturers and
5 customers are not interested in Java ME on smart phones
6 anymore.

7 **Q.** Mr. Screven, during your direct examination I think you
8 testified that there's no separation between the English
9 language specifications in the APIs and the underlying computer
10 program --

11 **A.** That's right.

12 **Q.** -- APIs, correct?

13 They're together in the same file?

14 **A.** Yes.

15 **Q.** The specification is part of the source code file. That
16 was your testimony, correct?

17 **A.** Yes. When -- people often create additional language
18 artifacts. But what Java programmers look at day-to-day, when
19 they're trying to understand the API, what's called the
20 Javadoc, that is directly embedded within the source file.

21 **Q.** All right. And those English language comments are then
22 extracted from that file and used as the basis for Java
23 documentation. Correct?

24 **A.** Well, it's more than the English language comments. It's
25 also the associated Java language elements which form the class

1 declaration, method declaration, constant declarations, and
2 other components which comprise the API, along with the
3 comments.

4 Q. So it includes the Java language elements, like the
5 declaration and the API name?

6 A. Yes.

7 Q. So the JAVA API name and the language declarations, those
8 are Java language elements. Correct? That's what you just
9 said?

10 A. Yes.

11 Q. Now, even though the plain language descriptions might be
12 in the source code file, they're not actually part of the
13 source code. Are they?

14 A. To me, they're part of the source code. They are in the
15 file. If I look at -- if I go and I look at the Java API
16 source files for, you know, the class files in question here or
17 any Java source file, right, it's -- you see a very structured
18 set of comments specifically tied to syntactic elements of the
19 Java programming language, which will then be extracted out as
20 part of the Java documentation.

21 Q. The English language comments in the source code file,
22 they don't actually get compiled into bytecode that tells the
23 device what to do; do they?

24 A. No, they do not.

25 Q. The plain language descriptions don't actually serve any

1 purpose at all, as far as telling the device how to run the
2 program. Correct?

3 **A.** Yeah, the purpose of the English language text is to tell
4 the programmer who's using the API how to use it, but, also,
5 the programmer who's implementing those API entry points what
6 to code.

7 **Q.** So if the English language specifications were stripped
8 out of the source code file, the source code would run exactly
9 the same on the device. Correct?

10 **A.** Yes. But, of course, if you stripped out the API, the
11 file wouldn't compile. So, you know, the Java language program
12 elements which are the API, independent of the English language
13 comments, right, are absolutely essential to the Java source
14 file.

15 **Q.** But as far as, actually, the source code that tells the
16 computer what to do, the English language specifications don't
17 provide any instructions to the computer. Correct?

18 **A.** That's right. It's the part of the API which is Java
19 language which tells the compiler what to do with the rest of
20 the statements and is part of that source file and is essential
21 to the program.

22 **Q.** And it's part of the Java language that tells the
23 programmer what to do. Right?

24 **A.** The part of that source file which is the steps the
25 computer should take to implement the API, that is written in

1 Java programming language, along with the API elements, right,
2 which also become extracted into the Javadoc.

3 Q. I think you said that some APIs come standard with the
4 Java language. On direct, didn't you say that?

5 A. I say it comes standard it Java. Java is an umbrella term
6 that refers to many things. It refers to Java virtual machines
7 which actually execute Java at runtime. When you go to run the
8 program, it actually is the thing which is causing the program
9 to run. It is the Java language itself and associated tools
10 like the compiler. And then it is libraries.

11 Right now, the Java language itself is separate from
12 the Java virtual machine, and it's separate from the libraries.

13 Q. So some of the Java language APIs are required by the Java
14 language specification. Correct?

15 A. Very, very little of it.

16 Q. Okay. But some of the 37 APIs at issue in this case are,
17 in fact, required by the Java language specification. Correct?

18 A. I think that there are thousands of classes that are part
19 of this case, and there's probably two dozen which are
20 mentioned in the Java language specification.

21 Q. You testified on direct that programmers are used to using
22 these particular Java language APIs, correct?

23 A. Yes. They are very common. They are very popular.

24 Q. The programmers depend on them. Correct?

25 A. Well, programmers depend on all kinds of programming

1 libraries. So --

2 Q. Including the Java language APIs?

3 A. Well, let's -- let's -- a programmer writing a program in
4 Java, a modern programmer probably depends on -- if they're
5 writing Java from Oracle, they almost certainly and definitely
6 are using those Java APIs that Oracle provides. They are very
7 likely to be using totally different APIs also provided by,
8 let's say, the Apache Foundation. Right. They are very likely
9 to be using APIs created by these other vendors who provide
10 other interesting functionality.

11 Q. I think you testified that if the Java language APIs at
12 issue in this case were stripped out of Java by Oracle,
13 millions of programmers who work in Java would have to learn
14 the new APIs. Correct?

15 A. What I was testifying about is, it made no sense for
16 Oracle to create a different, alternate set of APIs because the
17 ones we have are good and they're known by millions of
18 programmers. We have no incentive to try to replace them.

19 Now, from the technical standpoint, we definitely
20 could replace them. Right. But why would we? We have no
21 incentive to do so.

22 Q. It wouldn't be very popular with the community of Java
23 programmers if Oracle were to strip out the current APIs and
24 replace them with new ones. They would have to learn new APIs.
25 Correct?

1 A. Actually, what would happen is, they just wouldn't use our
2 Java implementation. They would use IBM's Java implementation
3 instead.

4 Q. Mr. Screven, you testified that you participated in the
5 due diligence process when Oracle was deciding whether to buy
6 Sun?

7 A. Yes.

8 Q. After analyzing Sun's business, you provided; a
9 recommendation that Oracle ought to buy Sun. Correct?

10 A. Yes.

11 Q. And that entire due diligence process took two or three
12 days?

13 A. That's right.

14 Q. And your role in that two or three day process was to
15 evaluate all of Sun's products and technologies. Correct?

16 A. Well, you know, of course, we -- we briefly surveyed their
17 technologies. But, of course, we had very little time, and so
18 we had to focus on, you know, a small number of things we
19 thought were key.

20 Q. And during the due diligence process, you didn't evaluate
21 a single specific piece of Sun intellectual property; did you?

22 A. That's not right. I mean, we talked to Sun engineers
23 about specific products and technologies that they had, were
24 working on.

25 Q. You didn't evaluate any specific Sun copyrighted material.

1 Did you?

2 **A.** Can you please define what you mean by "evaluate."

3 **Q.** Did you calculate the market value of a single piece of
4 Sun copyrighted material during this two to three day due
5 diligence process?

6 **A.** Well, we -- our goal during the technical due diligence is
7 to understand, you know, is there a reason not to buy the
8 company? Is there some problem with the underlying technology
9 we are not aware of from general public information?

10 Now, with respect to Java, Oracle was deeply involved
11 in Java before --

12 **MR. PURCELL:** Your Honor, the witness is not
13 answering the question.

14 **THE COURT:** That's true. He asked you whether or not
15 you calculated the value of any copyrighted material during the
16 two to three day due diligence. Either you did or you didn't.
17 You can tell us yes or no.

18 **THE WITNESS:** So what do you mean by "calculate"?

19 **BY MR. PURCELL:**

20 **Q.** Did you look at a single piece of Sun copyrighted material
21 during the two to three day due diligence period and assign a
22 value?

23 **A.** Yes. I personally assigned a value greater than or equal
24 to the amount of money I'm not allowed to mention, right, for
25 Java technology. That is the amount of money --

1 Q. That's not my question, Mr. Screven.

2 My question is, did you look at a single, individual
3 Sun copyrighted material and assign a value to it during the
4 due diligence period?

5 A. You mean like one single file out of Java? Is that what
6 you mean? Or you mean all of Java?

7 Q. I don't mean all of Java, Mr. Screven. I mean a single
8 piece of Sun copyrighted material.

9 A. The value of Sun technology is not in some individual
10 autonomic piece.

11 So our job and what I did was say, how much is Java
12 worth to Oracle? Is it worth at least the amount of money that
13 we're paying? The answer is yes.

14 So I calculated, based on my expertise, based on my
15 experience, that to Oracle Java as worth at least what we were
16 paying for all of Sun.

17 Q. There's a lot of components to Java other than the 37 APIs
18 at issue here. Correct?

19 A. Yes.

20 Q. Sun had a hardware business, right; they sell servers?

21 A. Yes.

22 Q. And Sun had other businesses, as well, where they sold
23 other pieces of hardware. Correct?

24 A. Yes.

25 Q. And Sun had other software businesses, apart from Java.

1 Correct?

2 A. Yes.

3 Q. You mentioned the MySQL line of software.

4 A. Yes.

5 Q. That's a separate Sun software business that's not Java.

6 Correct?

7 A. That's correct.

8 Q. And there is many other items of value under the Java
9 umbrella apart from the 37 API packages at issue in this case,
10 correct?

11 A. Yes.

12 Q. There were thousands of patents that Sun had related to
13 Java, correct?

14 A. Yes.

15 Q. There is the Java trademark, correct?

16 A. Yes.

17 Q. And that's pretty valuable. Sun made sure that people
18 were complying with compatibility requirements before they got
19 to use the Java trademark, right?

20 A. Yes.

21 Q. You couldn't use the Java coffee cup unless you certified
22 that you were compatible with Sun's Java TCK, correct?

23 A. Well, I don't know about the coffee cup.

24 Q. In any event, all of these different components were items
25 of value related to Java, correct, at the time you bought Sun,

1 Oracle bought Sun?

2 **A.** They were all part of the value of Java.

3 **Q.** And then in addition to Java, there were the other
4 hardware and software businesses that Sun had that I discussed,
5 correct?

6 **A.** Yes.

7 **Q.** Now, during the due diligence process, you never prepared
8 any document contemporaneous at that time that put any value on
9 Sun's Java business, correct?

10 **A.** That's right.

11 **Q.** You never actually put in writing at the time, your
12 testimony here today, that the value of Java to Oracle was
13 greater than the value that Sun paid for the entire -- or,
14 Oracle paid for the entire company, correct?

15 **A.** That's right.

16 **Q.** Talking a little bit about Sun's business, you mentioned
17 that in 2009 when Oracle decided to buy Sun, that Sun was
18 having some financial struggles, correct?

19 **A.** Yes.

20 **Q.** It's your opinion that Sun had a very strong focus on
21 engineering, correct?

22 **A.** They did.

23 **Q.** And you would agree that Sun created some very good
24 terminology, correct?

25 **A.** Yes.

1 Q. But despite its technology, you also think that Sun just
2 wasn't very good at running a profitable business, correct?

3 MR. NORTON: Objection. Beyond the scope of direct,
4 your Honor.

5 THE COURT: I'm sorry?

6 MR. NORTON: Beyond the scope.

7 MR. PURCELL: The direct was all about the value of
8 Sun to Oracle.

9 THE COURT: Well, there was testimony about Sun might
10 go out of business and what would that mean to Oracle and it
11 was already failing. This is close enough to being within the
12 scope. I will allow the question.

13 Please ask the question again.

14 BY MR. PURCELL:

15 Q. Despite Sun's good engineering practices, it was your
16 impression that Sun just wasn't just very good at running a
17 profitable business, correct?

18 A. That's right.

19 Q. You believe that Sun had lost its way in terms of its
20 business strategy, correct?

21 A. Yes.

22 Q. Sun was never particularly good at bringing technologies
23 to market in your opinion, correct?

24 A. I would not agree with that part. I think they had gotten
25 to a point where they were particularly good at bringing

1 technology to market. I mean, there were times in the past
2 when they were very good at it.

3 **Q.** All right. But in the few years before the Oracle
4 acquisition, whatever skill Sun might have had at bringing
5 technologies to the market had waned and Sun in that time
6 period was no longer very good at bringing technologies to
7 market, correct?

8 **A.** I would say overall they were -- they had lost their way.

9 **Q.** In fact, talking about the Java product line specifically,
10 under Sun's direction the momentum for Java products had
11 stalled, correct?

12 **A.** I think the external progress, the apparent progress of
13 Java had definitely stalled.

14 **MR. PURCELL:** May I approach the witness, your Honor?

15 **THE COURT:** Yes.

16 (Whereupon, document was tendered
17 to the witness.)

18 **BY MR. NORTON:**

19 **Q.** Mr. Screven, I've handed you Trial Exhibit 2237. Do you
20 recognize this document, sir?

21 **A.** Yes, I do.

22 **Q.** And is this is a report that Oracle prepared about the
23 acquisition of Sun to submit to the European community?

24 **A.** Yes.

25 **MR. PURCELL:** Your Honor, I would like to move 2237

1 into evidence.

2 **MR. NORTON:** No objection.

3 **THE COURT:** 2237 in evidence. You may show it to the
4 jury.

5 (Trial Exhibit 2237 received

6 in evidence)

7 (Document displayed)

8 **BY MR. PURCELL:**

9 **Q.** Mr. Screven, just for the jury's edification, the European
10 Commission is the body, among other things, that regulates
11 commerce throughout various European nations, correct?

12 **A.** Yeah. I'm not expert on exactly what they do in total.
13 You know, they are they have some purview over mergers and
14 acquisitions in Europe.

15 **Q.** They are a regulatory authority in Europe?

16 **A.** Yes.

17 **Q.** And they are a regulatory authority that has authority to
18 approve or disprove mergers and acquisitions?

19 Excuse me. Let me say that again.

20 They are a regulatory authority in Europe that has
21 the power to approve or disapprove mergers and acquisitions,
22 correct?

23 **A.** Yes, I believe so.

24 **Q.** All right. So in submitting information to the European
25 community about the Sun acquisition, Oracle would be sure that

1 everything in its submission was true and accurate, correct?

2 **A.** Yes.

3 **Q.** If you could turn to Paragraph 15 of the submission. This
4 is on Page 13.

5 **A.** Turn to Page 15 or 13?

6 **Q.** Page 13, Paragraph 15.

7 **A.** Okay, yes.

8 **Q.** So Paragraph 15 starts with the sentence:

9 "Java's success - for Oracle in the industry
10 - depends on Java remaining open and unified.
11 Momentum for Java has stalled under Sun's
12 stewardship and will benefit from Oracle's
13 guidance and ability to make substantial
14 financial investments in its continued
15 development."

16 Do you see that?

17 **A.** Yes.

18 **Q.** And that was a true statement, correct?

19 **A.** Yes.

20 **Q.** If you look at the first bullet point under Paragraph 15,
21 that begins with the sentence:

22 "First, Sun's stewardship of Java and its
23 approach to the Java Community Process (JCP)
24 has recently discouraged broad participation
25 in the continued development of Java as a

1 industry standard, as evidenced, for example,
2 by the submission of only five JCP
3 specifications in the past 12 months, a small
4 fraction of those submitted just three years
5 ago."

6 Do you see that?

7 A. Yes.

8 Q. And that's a true statement?

9 A. Yes.

10 Q. Sun had stopped releasing new Java products at regular
11 intervals, correct, prior to the Oracle acquisition?

12 A. Well, certainly the release process had slowed.

13 Q. And Sun's failure to deliver new Java releases was doing
14 damage to Java, wasn't it?

15 A. Umm, you know, it was frustrating programmers. It was
16 frustrating companies that relied on Java. I think, you know,
17 it was starting to create angst, and that angst is damaging,
18 yes.

19 Q. Mr. Screven, Oracle is very focused on making money,
20 correct?

21 A. Yes.

22 Q. Always has been, correct?

23 A. Well, I mean, I've worked at Oracle for a long time. So
24 probably at least for the time I've been there, yes.

25 Q. And it's your impression that Sun was never as focused on

1 making money as Oracle is, correct?

2 **A.** No. I would say my impression was that they did not seem
3 particularly focused at the time that we acquired the company.

4 Now, years in the past under different leadership
5 they maybe had very different attitudes.

6 **Q.** At the time prior to the acquisition it was your
7 impression that Sun wasn't as focused on making money as
8 Oracle, correct?

9 **A.** My impression is that they just weren't as focused,
10 period, so.

11 **MR. PURCELL:** I'd like to play as a party admission
12 from Mr. Screven's deposition at Page 70, Lines 16 to 21.

13 **MR. NORTON:** Objection. There were disclosures,
14 designations for Mr. Screven and, therefore, should not be used
15 as an admission. And I don't believe that it's offered for
16 impeachment.

17 **THE COURT:** Overruled. Go ahead.

18 (Videotaped deposition played in open court.)

19 **BY MR. PURCELL:**

20 **Q.** So when Oracle was deciding to acquire Sun, Oracle was
21 confident that it could take Sun's assets and find a way to
22 make more money off of them than Sun had been doing, correct?

23 **A.** Yes. That's true in every acquisition.

24 **Q.** That was what drove Oracle's decision to acquire Sun,
25 correct?

1 A. Yes.

2 Q. And a necessary part of Oracle's strategy for making money
3 off Java is to assert its intellectual property rights in Java
4 against other companies, correct?

5 A. No. I think the most important way for us to make money
6 in Java is to make sure that Java remains a widely-used
7 evolving technology platform so that we can use it in our
8 middleware business, we can use it in our applications
9 business, it remains popular with companies. And doing that
10 requires that we maintain the integrity of Java. That means no
11 non-compliant Forks of Java.

12 MR. PURCELL: I would like to play as a party
13 admission from Mr. Screven's deposition at Page 110, Lines 19
14 to 24.

15 THE COURT: Does it contradict what he just said?

16 MR. PURCELL: It does.

17 THE COURT: All right. Go ahead.

18 (Videotape played in open court.)

19 BY MR. PURCELL:

20 Q. Mr. Screven, you're familiar with the differences between
21 feature phones on the one hand and smart phones on the other
22 hand, correct?

23 A. Yes.

24 Q. Feature phones were less advanced devices with less
25 computing power as compared to smart phones?

1 **A.** Yes.

2 **Q.** And because feature phones have less computing power, to
3 the extent you can even run applications on feature phones,
4 those applications would be much less sophisticated than the
5 applications you can run on smart phones, correct?

6 **MR. NORTON:** Objection. Beyond the scope, your
7 Honor.

8 **THE COURT:** Why isn't that true?

9 **MR. PURCELL:** This goes to Sun's ability to actually
10 get into the smart phone business.

11 **MR. NORTON:** Objection. There was no testimony --

12 **THE COURT:** I don't think he testified about Sun
13 getting into the smart phone business. Sustained.

14 **BY MR. PURCELL:**

15 **Q.** You testified on direct examination that prior to buying
16 Sun, Oracle had never managed to develop a smart phone
17 platform, correct?

18 **A.** We didn't try to develop a smart phone platform.

19 **Q.** I believe you testified that Oracle didn't have, prior to
20 acquiring Sun, the expertise to develop a smart phone platform,
21 correct?

22 **A.** I don't think we said "expertise." I think we might have
23 said we didn't have the technology. That's different than
24 expertise.

25 **Q.** All right. And then you testified that after buying Sun,

1 Oracle felt that it did have the technology necessary to buy a
2 smart phone platform, correct -- to build a smart phone
3 platform?

4 **A.** Yes.

5 **Q.** And since buying Sun in February, 2010 Oracle never has
6 actually built a smart phone platform, correct?

7 **A.** That's right.

8 **Q.** And do you have any understanding as to why Sun, prior to
9 the acquisition by Oracle, with Sun's technology hadn't built a
10 smart phone platform of its own?

11 **A.** No.

12 **Q.** The fact is that Sun, prior to Oracle's acquisition in
13 2010, never had built a smart phone platform, correct?

14 **A.** Not as far as I know, no.

15 **Q.** And even prior to Android's release on the timeline in
16 October of 2008, before Android was on the market Sun had never
17 taken its Java technology and created a smart phone platform,
18 had it?

19 **MR. NORTON:** Objection. Scope.

20 **THE COURT:** Go ahead. Answer the question.

21 **A.** Not as far as I know.

22 **BY MR. PURCELL:**

23 **Q.** You also testified that one of the important reasons why
24 Oracle bought Sun was because some of Oracle's business lines
25 depended on Java technologies, correct?

1 A. Yes.

2 Q. I think you testified that much of Oracle's middleware is
3 written in the Java programming language?

4 A. Correct.

5 Q. And many of Oracle's business application platforms are
6 also written in Java, correct?

7 A. Yes.

8 Q. So making sure the Java technologies were well taken care
9 of, that was important to Oracle, correct?

10 A. Yes.

11 MR. PURCELL: Can we put Trial Exhibit 2347, which
12 was admitted during Mr. Screven's, direct up on the screen?

13 (Document displayed)

14 BY MR. PURCELL:

15 Q. Now, this is a letter that you signed on behalf of Oracle,
16 correct?

17 A. Yes.

18 Q. And you signed this letter requesting that Sun grant a
19 license to the Apache Harmony project, correct?

20 A. Yes.

21 Q. And you wanted Sun to grant a license free of any Field of
22 Use restrictions to Apache Harmony, correct?

23 A. Yes.

24 Q. And now you testified, I think, that Sun never gave a
25 license to Apache, correct?

1 A. No. They never gave a license, that's right.

2 Q. The other way to look at that is that Apache never agreed
3 to abide by the terms of any license, correct?

4 A. Well, that's true, because Sun offered them a license with
5 a Field of Use restriction and Apache turned it down.

6 Q. Despite never agreeing to that Field of Use restriction,
7 Apache had been making its product available on its website
8 since 2005, hadn't it?

9 A. You could download their source.

10 Q. Right. So anybody could have taken, as of 2005, the
11 Apache source code that included the Java class libraries that
12 eventually made their way into Android, correct?

13 A. They could have taken it, yes, just like Google did,
14 that's right.

15 Q. And anybody could have then used those APIs under the
16 terms of the Apache license, correct?

17 A. Well, I think -- of course, you know, from what I
18 understand, you know, this whole trial is about -- you know,
19 dispute about intellectual property rights and, you know, that
20 same dispute would now exist between Oracle and whoever did
21 that, Google or otherwise.

22 So the fact that Apache made that source code
23 available under the Apache license doesn't mean it was free to
24 use for anyone under the Apache license.

25 Q. Sun never sued Apache, did it?

1 A. No.

2 Q. Sun never told Apache that by making the source code
3 available and the APIs available for free for anyone to use on
4 its website, that Apache was violating Sun's copyrights, did
5 it?

6 MR. NORTON: Objection, foundation.

7 THE COURT: Well, you, yourself, Mr. Norton, laid
8 this letter before the witness and asked him to testify all
9 about it. So he has sufficient foundation to answer those
10 questions.

11 This is a fair question within the scope of that line
12 of questions. The objection is overruled.

13 Please answer that question.

14 A. Could you repeat the question?

15 BY MR. PURCELL:

16 Q. Sure.

17 Sun never asserted that Apache, by making its source
18 code and the Java APIs available on its website for anybody to
19 use from 2005 onward, was violating any Sun copyrights, did it?

20 A. Well, okay. I don't know about "asserted." They didn't
21 sue Apache, right, but you know whether they wrote letters to
22 people or talked to people, I don't know.

23 Q. Are you aware of any letters that Sun ever wrote to
24 Apache --

25 A. No.

1 Q. (Continuing) -- accusing Apache of copyright infringement?

2 A. No, but I wouldn't necessarily be aware of those letters.

3 MR. PURCELL: Nothing further.

4 THE COURT: All right. Redirect?

5 REDIRECT EXAMINATION

6 BY MR. NORTON:

7 Q. Mr. Screven, you were asked some questions about different
8 editions of Java on cross examination.

9 A. Yes.

10 Q. Is Java ME a Fork of Java SE?

11 A. No. No, it's not.

12 Q. Is Java SE a Fork of Java EE?

13 MR. PURCELL: Objection, your Honor. This calls for
14 expert testimony.

15 THE COURT: It's within the scope of the questions
16 you asked. Overruled.

17 A. No, it's not.

18 BY MR. NORTON:

19 Q. Is Java ME a Fork of Java Card?

20 A. No.

21 Q. Are any of those four editions Forks of the other?

22 A. They are not Forks.

23 Q. Why not?

24 A. Well, they are each -- they are each editions of Java
25 specifically designed for a particular purpose. In the case of

1 Card ME SE they spanned a range of compute hours.

2 So Java Card runs on -- they are like a little smart
3 card, like a credit card. It's a very small processor and very
4 little memory. So it's Java reduced down to run in a tiny
5 little form factor. Right?

6 Java ME is designed to run on devices which are much
7 less powerful than, say, a modern smart phone, but still more
8 capable than just a little credit card size device. Something
9 like your flip phones that you use.

10 Java SE is designed to run on anything from smart
11 phones, you know, on up in terms of the compute power.

12 Now, each one has exactly the same sort of you know,
13 like once run through it characteristic within that class of
14 compute devices.

15 **Q.** You were asked some questions about APIs on
16 cross-examination. Are the names of the API classes and
17 subclasses, are those part of the Java language?

18 **A.** There are syntactic elements within the Java language.
19 So I know this is going to sound like Greek to most of the
20 people sitting in the audience, but the program language is --
21 program language, including Java, has something called a
22 syntax. And that syntax describes all of the kinds of key
23 words and literals and characters and other things that may
24 appear within the programming language. And so the names of
25 methods and classes and other elements which you see appearing

1 in API are syntactic elements within the Java language
2 specification.

3 Q. So does the Java language specification require that one
4 use any particular class?

5 A. No.

6 Q. No. No, it does not. I mean, there is nothing in the
7 Java language specification that requires that there be a class
8 named tree, but there is a class named tree within -- within
9 the standard APIs.

10 You know, there is no requirement that there be a
11 class called list, but there is a class actually, something
12 called an interface called list within -- within, you know, the
13 standard APIs.

14 Q. When you say "within the standard APIs," are you refusing
15 to the language specification or the API specification?

16 A. I'm referring to the API specification.

17 Q. Is there any -- aside from what you described in your
18 testimony on cross-examination as approximately two dozen
19 elements, is there any functionality called for by the Java
20 language that requires that you use any particular class?

21 A. Its very, very little. So, for example, if I have a
22 string literal. So within my Java program that has a type.
23 The type is -- you know, it's an instance of the class string.

24 Now, you know, there are similar kind of requirements
25 for, you know, a class called integer or a class called double,

1 but the actual programmatic interfaces of those classes is not
2 specified or dictated within the Java language specification.
3 And, you know, beyond that couple dozen class names that appear
4 within the Java language specification, you know, the many
5 thousands of classes which are part of the APIs in question
6 here are not mentioned at all as part of the language
7 specification.

8 **THE COURT:** Let me ask a question on that.

9 You say there are about a dozen. What are the names
10 of the dozen that are called out in the Java programming
11 language? Do you know that by heart?

12 **THE WITNESS:** So it will be incomplete because it's
13 off the top my head. But Double.

14 **THE COURT:** Double?

15 **THE WITNESS:** Yes.

16 Float?

17 **THE COURT:** Float?

18 **THE WITNESS:** Long.

19 **THE COURT:** Wait a minute. Float?

20 **THE WITNESS:** Float, F-L-O-A-T.

21 **THE COURT:** Yes.

22 **THE WITNESS:** Long, L-O-N-G.

23 Integer.

24 Bullion.

25 String.

1 Thread, I believe is there.

2 Object.

3 Class.

4 **THE COURT:** Class?

5 **THE WITNESS:** Class, C-L-A-S-S.

6 Now, I'm sure I have missed some that are mentioned.

7 Now, if you actually look at the Java language
8 specification document, you'll notice that there are some
9 example program texts. They mention other classes that are
10 part of the standard library, but that -- but they are shown as
11 program examples. They are not actually part of the language
12 specification proper. So that -- so that if you remove them
13 out of the libraries, you would not affect the behavior of the
14 Java compiler.

15 Those other classes are a little special just because
16 the compiler knows that they exist and have to exist, you know,
17 as it's interpreting a program to compile, but that's it.

18 Other than those two dozen classes, there is nothing
19 else.

20 **THE COURT:** Are these classes or are those methods?
21 Like Double?

22 **THE WITNESS:** They are -- they are classes. They are
23 classes.

24 **THE COURT:** So do they -- within each one do they
25 have more than one method?

1 **THE WITNESS:** Yes. They have several methods.

2 Now, the methods themselves are -- almost none of the
3 methods are actually described or mentioned in the Java
4 language specification. Some of the methods are used in
5 examples, but they are not actually part of the language
6 proper.

7 So, for example, for the Class string has a method
8 which is find a given character within the string. So if I'm
9 looking at -- if I'm looking at a telephone number string and
10 I'm looking for the dash, you know, there is a method of string
11 that will let me find the dash. That method is not mentioned
12 in the Java language specification. It's not part of the Java
13 language. It is part -- part of the standard API that comes
14 along with Java.

15 **THE COURT:** Okay. Thank you.

16 Go ahead Mr. Norton.

17 **MR. NORTON:** Thank you, your Honor.

18 **BY MR. NORTON:**

19 **Q.** Now, if you -- you were also asked some questions about
20 the value of Java. If Java did not write once, run anywhere,
21 would that have any effect on the value of Java to Oracle?

22 **A.** Yes, in two very important ways. One important way is
23 that it would mean that our software would be harder to write.
24 If we wanted to run on a given platform and there was not a
25 compliant Java implementation there, then we would have to

1 change our software to make it run there. So that would make
2 our software development expenses much higher.

3 The second way is that because it would make Java
4 less appealing to other developers outside of Oracle, it would
5 mean that our products being implemented in Java would be less
6 appealing to them.

7 So programmers like using our middleware and they
8 like using our applications because they are implemented using
9 this compatible programming environment, language, APIs, JVM.
10 And if they can no longer be assured that Java is the same
11 everywhere, then our middleware and our applications will be
12 less appealing to them.

13 **Q.** You were asked on cross-examination whether you ever told
14 anyone in writing that you believed that the value of Java was
15 equal or greater to the purchase price of the company? Did you
16 ever tell anyone orally?

17 **A.** Yes --

18 **MR. PURCELL:** Objection, hearsay.

19 **THE COURT:** Yes, but the -- I'm going to allow it in
20 light of the cross-examination.

21 Go ahead. Overruled.

22 **BY MR. NORTON:**

23 **Q.** What did you say and to whom did you say it?

24 **A.** I told Mr. Ellison, our CEO, in a telephone conversation
25 that we should buy Sun for no reason other than Java. Java was

1 easily worth the purchase price.

2 Q. And did you say this prior to the date on which Oracle
3 decided to acquire Sun?

4 A. Yes.

5 Q. And so what year would that have been in?

6 A. Geeze, 2009 I guess.

7 Q. So, and at that time had Oracle brought any litigation
8 against Google over Android?

9 A. No.

10 Q. If we can turn to the exhibit Mr. Purcell showed you,
11 Exhibit 2237, which is the larger of the two documents.

12 (Witness complied.)

13 Q. And Mr. Purcell directed you to Page 17 of 205, which was
14 Paragraph 15.

15 (Document displayed)

16 Q. And he identified the sentence that begins Paragraph 15:

17 "Java's success - for Oracle and the
18 industry- depends on Java remaining open and
19 unified."

20 Would you please explain what was intended by
21 "unified" here?

22 A. "Unified" means --

23 MR. PURCELL: Objection, your Honor. I don't know
24 that this witness wrote the document. No foundation.

25 THE COURT: But you, yourself, asked him about this

1 paragraph, correct?

2 **MR. PURCELL:** I did.

3 **THE COURT:** Then it's fair game for the witness to go
4 back to the same paragraph and explain it.

5 Overruled. Go ahead.

6 **MR. NORTON:** If I may, your Honor.

7 **BY MR. NORTON:**

8 **Q.** Mr. Screven, were you involved in the preparation of this
9 document?

10 **A.** Yes.

11 **Q.** And did you review the document before it was filed?

12 **A.** Yes.

13 **Q.** And would you please explain what was intended by the word
14 "unified"?

15 **A.** "Unified" means that the various parties that create and
16 ship Java implementations have compatible implementations.
17 They were all implementing the same programming language and
18 that if we were shipping a Java implementation, it has passed
19 the test kits and, therefore, compatibility is ensured.

20 **Q.** Mr. Purcell showed some deposition testimony of yours in
21 which you discussed that enforcing intellectual property rights
22 is a necessary part of monetizing.

23 Can you explain what you meant by that?

24 **A.** Right. So Oracle is the hardware and software businesses.
25 Now, in the software business we sell software. So people pay

1 us for licenses to use our software. And it's important to us
2 that we actually enforce the intellectual property rights
3 around our software. Otherwise, people would take and use our
4 software without paying us and that would -- that would
5 undermine and destroy our business model.

6 **Q.** And, I'm sorry. One more question on Exhibit 2237 on that
7 same page that Mr. Purcell showed you, Page 17 [sic].

8 **MR. NORTON:** If we can scroll down to the second
9 bullet on that page?

10 (Document displayed)

11 **MR. NORTON:** Thank you.

12 **BY MR. NORTON:**

13 **Q.** It begins, that paragraph begins.

14 "Second, as a result of this stagnation in
15 the JCP process, vendors already have and
16 will likely continue to fragment Java as a
17 programming language and environment for
18 developers."

19 Stopping there. Was that true?

20 **A.** Yes, yes.

21 **Q.** All right. And then if we go down a little further
22 there's a sentence that begins "Google's." And that sentence
23 says:

24 "Google's Android is also an example of
25 splintering the Java software developer

1 community with an implementation that is a
2 Sun Java Mobile Edition clone."

3 Now, is that one of the sentences that you reviewed
4 in the preparation of the document?

5 A. It is, although I think -- I mean, there is a mistake
6 there that it's actually a clone. I would say a Standard
7 Edition more than a Mobile Edition.

8 Q. But a clone of Java?

9 A. A clone of Java.

10 Q. And when was this document prepared, do you know?

11 A. Actually, I don't remember now exactly when it was
12 prepared.

13 Q. Was it prepared prior to the date on which Oracle closed
14 its acquisition of Sun?

15 A. Yes, yes. It's between when we announced the acquisition
16 and we closed the acquisition.

17 Q. And if you would actually turn to the very last page of
18 the document?

19 (Witness complied.)

20 Q. There is a place and date that appears.

21 A. Yes.

22 Q. What is that date?

23 A. That is July 30th, 2009.

24 Q. So does that refresh your recollection that this document
25 was prepared in July of 2009?

1 **A.** Yes, that's right. That is when it was prepared.

2 **Q.** And, again, using the timeline, July 30, 2009 was before
3 Oracle filed any lawsuit against Google?

4 **A.** Yes.

5 **Q.** And in this document Oracle asserted that Android was
6 splintering Java, is that right?

7 **A.** Yes.

8 **MR. NORTON:** Nothing further.

9 **THE COURT:** All right. May the witness step down?

10 **MR. PURCELL:** He may.

11 **THE COURT:** Okay. Thank you, sir. You may step
12 down. You're excused not subject to recall.

13 (Witness excused.)

14 **THE COURT:** Time for a 15 minute break, isn't it?
15 Please remember the admonition.

16 **THE CLERK:** All rise.

17 (Jury exits courtroom at 11:13 a.m.)

18 **THE COURT:** Please be seated.

19 Here are some more things on the issues that I have
20 to decide.

21 Now, I don't want you to give me this unless it's
22 going to actually wind up being in evidence, but if it is going
23 to be put into evidence, then I would like to have some advance
24 thinking about it.

25 With respect to Java programming language being

1 something stand-alone and separate and apart from the APIs, I
2 would like to have a listing of the commands or statements or
3 declarations, whatever the more limited set is, of the Java
4 programming language. Like, go to... whatever. But the whole
5 list. Is it several hundred? Is it a few dozen? I'd like to
6 see that list. And, also, the syntax rules, if there are
7 syntax rules.

8 With respect to the -- also, with respect to the --
9 the witness referred to these 12 classes. I would like to know
10 the 12 classes and the methods that are included within the 12
11 classes and then also to see these examples that he referred
12 to, which he said were just examples, but, nonetheless, they
13 are there. I would like to know what those examples are. They
14 refer to other APIs, he said. I don't know those 12.

15 Then a different question. Within the 37 the
16 plaintiff has made a big deal out of interrelationships, but
17 it's always been very vague. What I am assuming that it
18 means -- but I don't know, because it's never been proven,
19 maybe it will be, but that's why I'm asking -- is that some
20 particular method and some particular library in some
21 particular class will borrow the code that is, and call up some
22 method in a different class and so as not to have to repeat the
23 same code, which is, you know, perfectly understandable that
24 you would do it that way.

25 The suggestion has been made that in every single

1 instance Google copied those interrelationships so that we
2 could find a one-for-one correspondence of -- if you go to,
3 say, the ABS method, you would find that it calls up some other
4 method, and the suggestion has been made that in every single
5 instance Google calls up the exact same method within the
6 method; i.e., copying exactly the interrelationships.

7 Is that true, Mr. Jacobs? Is that the way it works,
8 or is it just some of those interrelationships?

9 **MR. JACOBS:** I think it's going to sound a little
10 circular, your Honor, but to the extent that Google has
11 implemented the application programming interfaces contained
12 within the 37 packages, then Google has copied all of the
13 elements, including the interrelationships.

14 We'll explain the interrelationships with the next
15 witness actually. It might be a little --

16 **THE COURT:** All right. I can wait on that, but I
17 would like to see some proof of that and that it -- and all of
18 these 4500 or so methods where one of them calls up another
19 method.

20 In other words, the witnesses have been referring to
21 these as prewritten programs. Okay. I understand that. And
22 maybe a prewritten program borrows from another prewritten
23 program so you don't have to repeat that. And what I hear you
24 saying is in every single instance where that occurs, Google
25 has duplicated it, in fact, calling up the same method in the

1 same way that it's done in that particular method. I would be
2 interested in knowing whether or not that's true.

3 So I know that that's what you allege. That's what I
4 hear you saying. But the devil is always in the details and I
5 would like to know if that bears out 4500 times.

6 **MR. JACOBS:** Understood, your Honor.

7 **THE COURT:** All right. So somebody surely has looked
8 at that and knows the answer.

9 All right. We'll take our 15 minutes now.

10 (Whereupon there was a recess in the proceedings
11 from 11:19 a.m. until 11:30 a.m.)

12 **MR. JACOBS:** Before we begin, your Honor, because
13 would be tedious for the jury, we have reached agreement on a
14 set of Java-related copyright registrations to offer into
15 evidence.

16 **THE COURT:** All right. Go ahead.

17 **MR. JACOBS:** 450, 451, 452, 453, 454, 455.

18 **THE COURT:** All agreed?

19 **MR. PURCELL:** No objection.

20 **THE COURT:** All of those are now received in
21 evidence.

22 (Trial Exhibits 450, 451, 452, 453, 454, 455 received
23 in evidence)

24 **MR. JACOBS:** 460 -- you will see why we're doing this
25 here, your Honor. 460, 461, 462, 463, 464.

1 **MR. PURCELL:** No objection.

2 **THE COURT:** Received.

3 (Trial Exhibits 460, 461, 462, 463, 464 received
4 in evidence)

5 **MR. JACOBS:** 475, 476.

6 **MR. PURCELL:** No objection.

7 **MR. JACOBS:** 509, 510, 511.

8 **MR. PURCELL:** No objection.

9 **THE COURT:** Okay. All received.

10 (Trial Exhibits, 475, 475; 509, 510, 511 received in
11 evidence)

12 **MR. JACOBS:** 513, 518.

13 **MR. PURCELL:** No objection.

14 **MR. JACOBS:** 520, 521.

15 **MR. PURCELL:** No objection.

16 **MR. JACOBS:** 523, 524.

17 **MR. PURCELL:** No objection.

18 **MR. JACOBS:** 526.

19 **MR. PURCELL:** No objection.

20 **MR. JACOBS:** 595, 596, 597.

21 **MR. PURCELL:** No objection.

22 **MR. JACOBS:** 598, 599.

23 **MR. PURCELL:** No objection.

24 **MR. JACOBS:** 601, 602, 603.

25 **MR. PURCELL:** No objection.

1 **MR. JACOBS:** 659.

2 **MR. PURCELL:** No objection.

3 **MR. JACOBS:** End of dramatic reading.

4 **THE COURT:** All right. Thank you. All received in
5 evidence.

6
7 (Trial Exhibits 513, 518; 520, 521; 523, 524; 526;
8 595, 596, 597; 598, 599; 601, 602, 603; 659 received
9 in evidence)

10 **THE COURT:** Ready to go?

11 **MR. JACOBS:** Yes, sir.

12 **THE COURT:** Let's bring in the jury.

13 (Jury enters the courtroom at 11:33 a.m.)

14 **THE COURT:** Thank you. Welcome back. Please have a
15 seat.

16 And Oracle may call its next witness.

17 **MR. JACOBS:** Oracle calls Dr. Mark B. Reinhold as its
18 next witness, your Honor.

19 **THE COURT:** All right. Please stand there and raise
20 your right hand.

21 **MARK B. REINHOLD,**
22 called as a witness for the Plaintiff herein, having been first
23 duly sworn, was examined and testified as follows:

24 **THE WITNESS:** I do.

25 **THE CLERK:** Please be seated.

1 **THE COURT:** Have a seat. Thank you.

2 You need to sit about this close to that. This base
3 of the microphone will move all around to suit your
4 convenience.

5 Why don't you say your name?

6 **THE WITNESS:** Mark B. Reinhold.

7 **THE COURT:** That's good.

8 Go right ahead, counsel.

9 **DIRECT EXAMINATION**

10 **BY MR. JACOBS:**

11 **Q.** Dr. Reinhold what is your position now at Oracle?

12 **A.** I am the chief architect of the Java Platform Group.

13 **Q.** What did you do before you were employed at Oracle?

14 **A.** I was at Sun Microsystems.

15 **Q.** How long were you at Sun?

16 **A.** I joined Sun in 1996, so I was there until the
17 acquisition; about 14, 15 years.

18 **Q.** In your work for Oracle and Sun have you designed APIs for
19 Java?

20 **A.** I have.

21 **Q.** Can you tell the jury, please, a little bit about your
22 educational background?

23 **A.** So I have a PhD from the Massachusetts Institute of
24 Technology. Before that I did an undergrad degree at the
25 University of Pennsylvania.

1 Q. And what is your PhD in?

2 A. Computer science.

3 Q. Can you explain what you do in your job as a chief
4 architect of the Java Platform Group?

5 A. Sure. So at a high level I'm responsible for steering the
6 technical direction of the work that the group does. I'm also
7 responsible for the engineering processes and practices we use
8 to build our software. And I also help get -- I'm involved in
9 the actual work of getting new releases ready and built and
10 shipped out.

11 Q. And when you talk about software, what are you referring
12 to?

13 A. I'm referring to Java.

14 Q. The word "architect" is in your title. How does that
15 relate to what you do?

16 A. Well, in my kind of role it's a little bit like being --
17 like being a building architect in that a big part of my job is
18 to look after the coherence of the Java Platform as a whole, to
19 make sure everything is fitting together well, to make sure
20 that new things fit in properly, and so that the whole thing
21 continues to make sense.

22 In a little -- in a little bit it's also like being a
23 civil engineer, because I'm also responsible for the integrity
24 of the internal structure of all code.

25 Q. Do your responsibilities include the Java APIs and class

1 libraries?

2 A. Yes.

3 Q. For which software platforms in particular?

4 A. For the Java SE Platform primarily.

5 Q. Do you actually write code yourself these days?

6 A. I do still write code. I'm an engineer at heart. I would
7 be very unhappy if all I did was supervise other people writing
8 code.

9 Q. How long have you held the role that you hold now?

10 A. I was in a similar role at Sun starting in about 2006.

11 Q. And before you became this -- into this -- you came into
12 this chief architect role, were you working on Java?

13 A. Yes. I worked on Java my entire time at Sun.

14 Q. So how many years have you worked on the Java Platform?

15 A. By now it's about 16.

16 Q. Does that include for that period working on API design
17 and implementation?

18 A. Yes.

19 Q. Just tell the jury a little bit about Sun Microsystems,
20 especially as you encountered it when you joined the company?

21 A. So Sun, when I joined it in 1996, was still on an upward
22 growth path. The dot com boom was starting to happen. The
23 company couldn't build these big servers fast enough. And Java
24 was kind of the hot knew thing. That's why I came to Sun, was
25 for the opportunity to work on a software platform that looked

1 like it was going to be widely adopted. And there were a lot
2 of smart people on the team, which also made it attractive.

3 Q. Just to make sure we're using the calculated way the jury
4 by now has become familiar with, when you talk about Java, what
5 do you mean?

6 A. I mean the Java Platform, platforms as a whole.

7 Q. And what are the main components of the Java Platform?

8 A. The main components of the Java Platform are the Java
9 Virtual Machine.

10 Above that there are the Java -- well, the Java
11 Virtual Machine, the Java language, the programming language,
12 and the class libraries.

13 Q. Did you learn how the name Java was chosen when you joined
14 the group?

15 A. Yeah. It was chosen just a little bit before I started.
16 The story goes -- the -- there was this original skunk works
17 project at Sun and they were working on software for boxes and
18 stuff, and that project was called Oak. But then as they
19 repurposed that technology for the internet and for use in web
20 browsers, they did a trademark search on "oak" and that was
21 taken by some other technology company.

22 So there was this big brainstorming meeting and
23 everyone who was there tells a different story about it, but
24 the essence of it was that one of the engineers in the room was
25 drinking a cup of Peet's coffee and he spoke and said "Java,

1 how about that?" And at first people didn't like it much, but
2 it turned out to stick, and it also passed the trademark
3 search. No one else had trademarked it yet.

4 Q. I'd like to get right to the topic of the class libraries
5 and the APIs. So have you actually designed Java APIs
6 yourself?

7 A. Yes, I have.

8 Q. And have you built the class libraries?

9 A. I have done that, also.

10 Q. Can you explain to the jury what a Java class library is?

11 A. So a class library in Java is -- it's a kind of software
12 library, and software libraries are extremely common in
13 software engineering. They are libraries of prewritten code
14 that are general purpose and can be reused by software
15 developers in a wide variety of different programs.

16 Q. And what do you mean here by "prewritten"?

17 A. A library contains code that's already written. It's
18 already been tested. It has clear documentation. So that if a
19 developer needs to perform a certain task, they can go to the
20 library, see if there's a class or whatever type of code they
21 need in there, and then reference it in their own code.

22 Q. Can you give an example of one of the important Java class
23 libraries?

24 A. So one example would be there is an API for creating
25 secure network connections over the internet. This is the sort

1 of thing you would do if you need to transmit something like
2 your credit card information, right? You don't want to do that
3 in clear text that any snooper could just read. So there is an
4 API for creating secure network connections. It's a package
5 with several classes in it.

6 Q. How many segments of prewritten code like this are there
7 in the Java class libraries?

8 A. If you're counting classes in the Java 5 Platform, which I
9 understand is the topic here today, if you're counting classes,
10 then that number is about 3,500.

11 Q. And then what's the next -- in the hierarchy within a
12 class -- within a class what comes next?

13 A. So classes, classes themselves contain things called
14 methods and fields. And if you counted out methods and fields
15 in the Java 5 class library, the number is about 35,000.

16 Q. What is an Application Programming Interface?

17 A. An Application Programming Interface is, it's essentially
18 the blueprint for the class libraries. The class libraries are
19 in compiled form that the machine can understand.

20 So a human being looking at a class library, it's
21 just impossible to figure out what's going on. The API is a
22 specification of the class library. It's a description of it.
23 It tells you what -- what its structure is, what the names of
24 all the elements are, and it includes English prose that
25 describes how every element is expected to work. It also

1 defines all of the relationships between the different
2 elements.

3 **Q.** And by "relationships between the different elements," at
4 a very high level what do you mean?

5 **A.** Almost any element in a class can refer to another class.
6 It can refer to another element of another class.

7 **Q.** Let's talk in more detail about the actual structure of
8 Java's APIs.

9 Have you prepared some slides to help explain your
10 work in APIs and what they mean?

11 **A.** Yes, yes.

12 **MR. JACOBS:** Can we have them up on the screen?

13 (Document displayed)

14 **MR. JACOBS:** So, your Honor, if it would be okay with
15 you, I would hand Dr. Reinhold the clicker and have him walk
16 through these slides himself.

17 **THE COURT:** Is this for illustrative purposes?

18 **MR. JACOBS:** It is, your Honor.

19 **MR. PURCELL:** Your Honor, we object. This is in the
20 nature of expert testimony. It's not about facts. It's an
21 illustrative abstract tutorial.

22 **MR. JACOBS:** Your Honor, this is to explain his work
23 in designing APIs at Sun.

24 **THE COURT:** Was his deposition taken?

25 **MR. JACOBS:** Yes.

1 **THE COURT:** Was it taken on this subject?

2 **MR. JACOBS:** It was taken, yes, on the subject of
3 what is an API and what is a class, et cetera.

4 **THE COURT:** All right. I will allow him to do it.
5 Overruled. Go ahead.

6 **MR. JACOBS:** May I give him the clicker?

7 **THE COURT:** Yes.

8 (Whereupon, clicker was tendered
9 to the witness.)

10 **A.** Okay. So the first slide introduces basically the concept
11 of classes. And here I'm just using examples from the real
12 world. A class is a description of a group of objects. We
13 could have, for example, a Car Class and every car out in the
14 world is a member of the Car Class. Similarly, we can have a
15 Train class and every train is a member of the Train Class.
16 And we can have a Plane Class and every airplane is a member of
17 the Plane Class.

18 Now, classes are interesting because they can be used
19 to relate -- they can relate to other classes. For example,
20 cars, trains and planes are all -- all together they are all
21 kinds of vehicles, right?

22 **MR. PURCELL:** Your Honor, I object. This is
23 narrative. We should proceed by question and answer.

24 **THE COURT:** I will interrupt when it becomes a
25 problem.

1 **MR. PURCELL:** Thank you.

2 **THE COURT:** I understand the point you're making and
3 it's not a problem yet.

4 Continue on.

5 **A.** Okay. So all of these things are types of vehicles. So
6 we could introduce a Vehicle class, which groups the three
7 together.

8 So now if we were designing -- if we were actually
9 designing an API here and we just wanted to talk about
10 vehicles, we could use the Vehicle Class rather than Car, Train
11 and Plane separately.

12 Now, moving on. As I said earlier, classes can have
13 things within them. One of things they can have are methods.
14 Methods describe the actions available to members of the class.

15 So a car, for example, could have a start method to
16 start the engine, a stop method to stop the engine, a blowHorn
17 method to blow the horn. Of course, you could have a whole
18 bunch of other methods; turn the lights on, turn the lights
19 off, you know, accelerate, decelerate. I'm just showing three
20 here.

21 A train is a lot like a car. It also has stop, start
22 and blowHorn methods.

23 A plane is kind of like the other two. It will have
24 methods to start and stop the engines, but I have yet to see an
25 airplane have a horn you can blow. So there is no blowHorn

1 method in the Plane Class.

2 Now, another kind of thing that can be in a class are
3 fields. Fields describe the properties of the -- for a
4 particular member, it describes properties of that member of
5 that class.

6 So here I've just shown a couple in green. In the
7 Car Class we could have a model field. That could be the model
8 like Chevy Volt or Honda Insight or whatever. MaxPassengers
9 could be a number, which is the maximum of passengers. Maybe
10 it's two, maybe it's four, maybe it's five. And similarly we
11 could have additional methods on train and plane -- sorry,
12 additional fields.

13 Now, there is another thing called interfaces.
14 Interfaces in the Java language are kind of like classes,
15 except they can cut across this tree structure that we've shown
16 so far. So far this is just a tree. You can think of vehicle
17 as the root; car, train and plane are sort of branches coming
18 out of it.

19 Q. Let me just interrupt you for a second because that word
20 "Interfaces" is showing up.

21 A. Yes.

22 Q. Is this the same interfaces that is Application
23 Programming Interface?

24 A. No, it is not.

25 Q. Okay. So could you just get --

1 A. This is a much more specific interface. The term
2 "Application Programming Interface" includes these interfaces
3 in the classes and methods and everything else.

4 Q. Okay.

5 A. So there are other things in the world that have horns you
6 can blow. For example, a factory. Factories often have horns
7 that are blown to signal the beginning and end of a shift. So
8 if we had a Factory Class, it could have a blowHorn method.

9 What interfaces do is let us capture what is common
10 across Factory, Train and Car, which otherwise those are very
11 different kind of things.

12 So we could define an interface called ThingWithHorn,
13 for example, and that's for things with horns. It specifies
14 the blowHorn method. And we can say that Car, Train and
15 Factory, but not Plane, are related to the ThingWithHorn
16 interface. What we say is they implement the ThingWithHorn
17 interface.

18 So if you were writing code against this API and you
19 wanted to have some instructions about things with horns, you
20 could just think about the ThingWithHorn interface and whether
21 it's a car, a train, a factory or something else that someone
22 hasn't thought of yet, you have a way of capturing that
23 concept.

24 Now, additional classes can be useful. As more
25 classes come into the picture, it's useful to introduce yet

1 more to help structure the entire hierarchy. So here I've
2 added Truck, Rocket, and Office and House. And since that's
3 getting to be a fair number of classes, I've introduced some
4 more grouping classes to organize things.

5 So Car, Train and Truck are grouped under the
6 GroundVehicle Class, which itself is under the Vehicle Class.
7 Plane and Rocket are under the FlyingVehicle Class, which is
8 also under the Vehicle Class. And Factory, Office and House
9 are under the Building Class.

10 And we still have the case that Factory, Car, Train
11 and, oh, now Truck are things with horns that you can blow, so
12 they implement the ThingWithHorn interface.

13 As time goes on and the API gets richer, the picture
14 just keeps becoming more complicated. You can see there's
15 starting to be a fair amount of structure here.

16 I have PowerTools; Drill BandSaw, Router.
17 TransportStructure; Highway, Tunnel, TrainTrack. We need
18 something to help us understand this. You can imagine if this
19 were far larger, how hard it would be to understand.

20 This is where packages come in. So packages are the
21 highest level concept in the language and they are used to
22 organize related classes together.

23 So here I've shown Vehicle and PowerTools. I put
24 those into a package called Machines. I've put Building and
25 TransportStructure and all of those other classes into a

1 package called Structures. And I've put the ThingWithHorn
2 interface, which sort of stands on its own, into a package
3 called Soundmakers, which, you know, might have some other --
4 other things in it; maybe an orchestra, or a violin, classes
5 for other things that make sounds.

6 Now, I could have organized this all differently. It
7 was a deliberate choice to do things this way. I could have
8 organized classes that have to do with things on roads in one
9 package or under one grouping class. And I could have had --
10 you know, could have done many of these things differently.

11 **THE COURT:** What is a library?

12 **THE WITNESS:** What is a library?

13 **THE COURT:** A library. You said "package." Is that
14 the same thing as a library?

15 **THE WITNESS:** No. A package can describe part of a
16 library, your Honor.

17 **THE COURT:** What then is a library?

18 **THE WITNESS:** A library is the compiled form of the
19 code that can be used directly, sir.

20 So when the phrase "Java class library" is used,
21 what's the reference there to library? So Java class library
22 means the compiled code, form of the code that is ready for the
23 virtual machine to run.

24 And in the case of Java class libraries that are
25 associated with the APIs then what are those Java class

1 libraries? They're the compiled form of -- they are the
2 compiled form of the source code, which includes the APIs, but
3 also includes all of the instruction code as well.

4 **BY MR. JACOBS:**

5 **Q.** So what elements of classes, et cetera, have you
6 introduced to us that are -- you're now going to rely on as we
7 discuss actual APIs?

8 **A.** Okay. So going from the top down. Packages are the
9 highest level concept. Packages can contain classes and
10 interfaces.

11 Within a class or an interface you can specify a
12 method. Within a class you can also specify things called
13 fields. I've showed a couple examples of those.

14 So now let's talk about an actual Java API. The
15 java.nio.channels Package.

16 **A.** Right.

17 **Q.** First of all, can you explain your involvement with
18 java.nio.channels?

19 **A.** So, this was some work that I led in around 2000 to design
20 a set of new IO APIs for the Java Platform that could offer
21 higher performance than the old IO APIs could do.

22 **Q.** Did you have a particular role in that API development?

23 **A.** Yes. The role I had was what we call specification lead.

24 **Q.** Can you explain what a specification lead is, please?

25 **A.** So a specification lead at the end of the day is

1 responsible for all technical aspects of an API design.

2 Q. Can you tell us what this slide here, which is Slide 9 of
3 the demonstratives, is showing us, please?

4 A. Sure. So the java.io API is divided into five packages.
5 This is one particular package called the channels package. It
6 has a number of classes. Those are shown on the left. This is
7 using the same hierarchal tree notation that I used on the
8 previous slides.

9 And it also has some interfaces. Those are displayed
10 over on the right with dashed lines. Just like we had
11 ThingWithHorn and the interfaces relate some of the classes and
12 cut across the hierarchy, just like ThingWithHorn did.

13 Q. Just so the record is clear on this, can you identify the
14 classes in the java.nio.channels that are illustrated on this
15 slide?

16 A. They are Object; Channels, FileLock, Pipe, SelectionKey,
17 Selector, AbstractInterruptibleChannel; FileChannel --

18 Q. Slow down.

19 A. Sorry.

20 FileChannel, SelectableChannel,
21 AbstractSelectableChannel, DatagramChannel, ServerSocketChannel
22 and SocketChannel.

23 Q. And what are the interfaces that are illustrated here?

24 A. The interfaces are on the right. ByteChannel,
25 GatheringByteChannel, ReadableByteChannel,

1 ScatteringByteChannel, WritableByteChannel, Channel,
2 InterruptibleChannel and Closable.

3 Now, I should say just to be completely clear that
4 some of these classes and interfaces they are shown here for
5 reference. They are not actually defined in the channels
6 package. They are defined elsewhere.

7 **Q.** What do you mean by that?

8 **A.** So Object, for example, is in another package called
9 java.lang. Closable is in the java.io Package. And the two
10 classes whose name begins with the word "Abstract" are in a
11 related Java.io package, but one with a different name.

12 **Q.** So is this an example of a kind of an interrelationship
13 among classes?

14 **A.** Yes.

15 **MR. PURCELL:** Objection, leading.

16 **THE COURT:** It is leading, but it's okay in this
17 case.

18 Go ahead. Overruled.

19 **BY MR. JACOBS:**

20 **Q.** Can you explain what the nature of the interrelationship
21 is here?

22 **A.** The interrelationship with these elements that are in
23 other packages?

24 **Q.** Correct.

25 **A.** So in Java, Object is the class under which all other

1 classes are grouped. Every single object in Java is somehow an
2 instance of the Object Class. So that's always relevant to the
3 picture.

4 The Closable interface is over in the java.io package
5 because that is a very general purpose interface. If a class
6 implements the Closable interface, then what that means is it
7 has a method called Closed. Closed is a method you invoke when
8 you're finished using the resources provided by a specific
9 member of a class so that its resources can be reclaimed. And
10 many kinds of things are Closable in the Java APIs.

11 AbstractInterruptibleChannel and
12 AbstractSelectableChannel, they are in a subpackage called
13 java.io.channels.spi. And the reason for that is those classes
14 are only of interest to developers who are extending the
15 java.io IO framework itself. And that's a fairly uncommon
16 thing to do. So in order not to clutter up the channels
17 package proper, we put those in a subpackage since most
18 developers won't need to look at those.

19 Q. Now, does this Slide 9 show the entire java.nio.channels
20 Package?

21 A. It shows all of the top level classes, but some
22 information has been omitted.

23 Q. What's been omitted?

24 A. Well, the interfaces, for example, have -- there's a
25 richer structure of these interfaces than what's shown here.

1 Interfaces, just like classes, can be grouped under each other.

2 So if we can go to the next slide, that richer
3 structure is shown now on the right-hand side. As you can see
4 there, there is a little tree structure there, just like we
5 have for the classes.

6 Q. And how about methods and fields? Are they shown?

7 A. Sorry. In the channels package, no, methods and fields
8 are not shown. There would be a lot of them.

9 Q. Thinking back to your work in designing this package, did
10 it have to have this particular structure?

11 A. No. It could have had many alternative structures. As we
12 worked on this design, many different ideas were suggested and
13 evaluated.

14 What we wound up was something that we thought was
15 coherent, would be easy to use and attractive to developers,
16 but it could have ended up in many different ways and been just
17 as good.

18 Q. How many packages, API packages, are there in Java SE?

19 A. In Java 5 there were 166 API packages.

20 Q. And how about in the latest release of Java SE?

21 A. In the latest release, Java 7, which we shipped just last
22 year, there are 209 packages.

23 Q. I'd like to show you a poster.

24 **THE COURT:** Do this. You can take it over. My law
25 clerk may not be able to see, but you can put it right there

1 where the jury is going to have to walk in and out.

2 **MR. JACOBS:** Thank you, your Honor.

3 **THE COURT:** And you can move the easel over
4 temporarily.

5 **MR. JACOBS:** Okay.

6 **THE COURT:** And most of the jury will be able to see
7 fine, or at least better than if you leave it there.

8 (Demonstrative displayed.)

9 **THE COURT:** The witness won't be able to see it, but
10 maybe he knows it by heart or something.

11 All right. Can all of you on the jury see that?

12 It's tiny, I know. All right. So do your best.

13 Go ahead, Mr. Jacobs.

14 **BY MR. JACOBS:**

15 **Q.** Dr. Reinhold, what is this poster?

16 **A.** So this poster is a visual depiction using the visual
17 notation that we have seen on the slides thus far of about half
18 of the Java SE 5 APIs.

19 **Q.** Who uses this poster?

20 **A.** Developers use this poster.

21 **Q.** To do -- to understand what?

22 **A.** Well, it's a handy reference to the high level structure
23 of the API set.

24 **Q.** Was it created for this litigation?

25 **A.** No, it was not created for this litigation. This was

1 something that was produced by Sun around the time that Java 5
2 was released and you could buy it, you know, on Amazon and
3 other places like that.

4 **MR. JACOBS:** Your Honor, I offer Exhibit 1028 into
5 evidence. And we will figure out how to get it in a form for
6 the record.

7 **MR. PURCELL:** No objection.

8 **THE COURT:** 1028 received.

9 (Trial Exhibit 1028 received in evidence)

10 **BY MR. JACOBS:**

11 **Q.** Does this poster include all of the packages for Java
12 Standard Edition 5, all of the API packages?

13 **A.** No. As I said, it's only about half. I think these are
14 about 85 of the 166.

15 **Q.** Does it include all of the 37 packages that you understand
16 are at issue in this dispute?

17 **A.** No, it's missing three. So there are 34 disputed packages
18 on this poster.

19 **Q.** Does this poster illustrate the methods and the fields
20 that are part of the API packages?

21 **A.** No.

22 **Q.** Why not?

23 **A.** Well, if it did, either the type would be really, really
24 small or the poster would be gargantuan.

25 **Q.** Does this poster show all the different structural

1 relationships for the classes and interfaces even of the
2 packages that it lists?

3 **A.** No.

4 **Q.** Can you give us an example of what this poster is showing?

5 **MR. JACOBS:** May the witness stand down?

6 **THE COURT:** Yes. Let's hand to the witness the 1942
7 pointer stick that in 13 years has not failed me yet.

8 **THE WITNESS:** Reliable technology.

9 **THE COURT:** You may step down and be a professor.

10 **THE WITNESS:** Do you have a microphone?

11 **THE COURT:** No. Just keep your voice very loud.

12 **THE WITNESS:** Okay.

13 (Witness steps down.)

14 **A.** So each one of these brown headings is a package. That's
15 the name of the package and most of the stuff inside it.

16 For example, the java.nio.channels Package we were
17 discussing was right here (indicating). You can see that
18 structure is exactly the structure -- well, maybe you can't
19 see. ...is exactly the structure that I was talking about on
20 the slide. There are a whole bunch of others.

21 There are also things that are missing. For example,
22 in the Java APIs there is something called Exception Classes.
23 These are classes used to report some kind of an error
24 condition. Those aren't shown here because for the most part
25 if you're looking at this just trying to understand, "Okay,

1 I've got a problem, how am I going to solve it?" you don't care
2 about all the Exception Classes. Eventually you might care
3 when you find an error condition could happen, but if you care
4 about that, then you can read the more detailed documentation.

5 **BY MR. JACOBS:**

6 **Q.** And can you focus for a minute on what this tells us about
7 relationships between classes?

8 **A.** Sure. So just in the diagram, as in the diagram I was
9 showing, there are tree structures on the left relating
10 classes, and then there are also structures on the right
11 showing interfaces, and dotted lines between the classes and
12 the interfaces showing the relationship between the classes and
13 the interface.

14 Now, moreover, as we were -- as I was saying earlier,
15 some classes are shown in a package even if they are defined in
16 some other package, and that's just for reference. So here in
17 the java.nio.channels Package, there is the Object Class. Then
18 there is a little blue icon here indicating that Object is
19 actually defined in the package with that particular blue icon.
20 That blue icon is for the java.lang Package and here is Object
21 (indicating).

22 Similarly, in the Channels Package we have reference
23 to the Closable interface. As I said, that's not defined in
24 the Channels Package. That's defined over in java.io which is
25 right above, so here is the definition of the Closable

1 interface (indicating).

2 Q. Now, again, does the poster shows us methods or fields?

3 A. It does not show us methods or fields.

4 Q. Did methods or fields have relationships themselves that
5 would extend to different interfaces or classes?

6 A. Methods and fields can be -- are related to other
7 interfaces or classes.

8 Q. And can you maybe return to your --

9 A. Yes.

10 (Witness resumes stand.)

11 Q. I think you have slides to illustrate this?

12 A. Yeah. If we can go to the next slide, please? That one.

13 (Document displayed)

14 A. Right. So let's go back for just a moment to the Car
15 Class that we started with. So car has Stop, Start and
16 blowHorn methods. Suppose it had another method called Paint.

17 Can you click that in, please?

18 So if you want to paint a car, you need to specify
19 what color you want. And so the Paint method has what we call
20 an input parameter and that input parameter is the color you
21 want the car to be painted.

22 Now, to talk about a color, we need some way to
23 represent that. And the way -- the most natural way to do that
24 is to create another class called Color. And maybe, maybe
25 members of the Color Class have fields that are, for example,

1 they could be red, green, blue and the mixture of those
2 describes the color that you want.

3 So in order to paint a car, you specify a member of
4 the Color Class as input, and that's the color that you'll get.

5 Now, methods can also return members of other
6 classes, but I haven't shown that here.

7 **Q.** Let's talk a little more about how the Java APIs relate to
8 the class libraries, to the code that you were discussing
9 earlier. And let's use the java.nio.channels Package again to
10 illustrate that.

11 So what do you want us to focus on on this
12 demonstrative -- on this slide No. 12?

13 **A.** So this is the slide we've seen before. It's the same
14 notations on the poster. It's a very high level view of what's
15 in the java.io.channels Package.

16 So to explain the relationship between an API and
17 its -- the corresponding part of the class library, let's zoom
18 in, if we can, on just one of these classes, the class called
19 Channels there.

20 So on the next slide I'm showing the relationship
21 between the Channels Class API and the zeros and ones for that
22 class in the class library. So on the right-hand side is the
23 Java class library. It has a bunch of compiled classes in it,
24 zeroes and ones, ready to be run by the Java Virtual Machine.

25 I've zoomed in on the channels class within that

1 library. On the left is the tree structure, very high level
2 API description. And as you can see, even though that
3 description is high level, it corresponds exactly to what's in
4 the class library zeroes and ones so that the channels Class
5 has its name. It gets that from the API. It has four methods
6 called newInputStream, newOutputStream and two variant methods
7 called newChannel. And those methods take input parameters of
8 a given type.

9 Now, if we go not next slide?

10 The part on the right is the same. On the left what
11 I'm showing is the full API specification for the Channels
12 Class. So this is html, viewable in a web browser.

13 **Q.** Just pause there for a minute. Html is?

14 **A.** Hyper Text Markup Language. Text you can read on the web
15 with a browser, in a computer.

16 Okay. So the Channels API specification describe the
17 Channels Class. And as you can see on the upper left, it
18 declares, okay, this is the java.nio.channels Package. The
19 class name is Channels. There is some -- there are little
20 fragments of actual Java programming language, constructs near
21 the top telling you that the Channels Class is grouped under
22 java.lang.Object.

23 There is some English prose describing generally what
24 this class is about. And if you read it it says, "Utility
25 methods for channels and streams."

1 "This class defines static methods that
2 support the interoperation of the stream
3 classes of the java.io packages with the
4 channel classes of this package."

5 And "Since 1.4" just means it was first introduced in
6 Java 1.4.

7 Then below that we have a summary of all the methods
8 in this class. That summary is fairly terse, but it's a very
9 useful reference to developers who are trying to figure out,
10 well, which of these methods might I want to use.

11 Then once you figure that out, you can scroll down --
12 and we have shown that on the next slide -- and look at the
13 detailed API specification for one of these methods.

14 So here is some detail. On the upper left we have
15 the newInputStream method. There is some typewriter text
16 there. That's a fragment of Java programming language code.
17 It says:

18 "Public static InputStream newInputStream
19 (ReadableByteChannel, ch)."

20 So that's the fragment of actual Java programming
21 language code. What it means is we're declaring a method
22 called newInputStream. It takes as an input parameter a
23 ReadableByteChannel and it returns as an output parameter
24 InputStream.

25 There is also in English prose here, just as there

1 was at the top of the class, and that prose describes what this
2 method will do. It says:

3 "Constructs a stream that reads bytes from
4 the given channel."

5 Q. And then there is additional prose?

6 A. There's additional prose. I won't belabor this.

7 As you can see, there is a still a direct match-up
8 between what's in the API specification on the left. We have
9 the -- the programming language fragment describing
10 newInputStream. And that exactly corresponds to the compiled
11 method in the compiled class inside the class library.

12 And it's a similar story for NewInputStream and the
13 newChannel methods and other methods in this class.

14 Q. So what is the relationship between the structure of the
15 Java APIs to the structure of the java class libraries?

16 A. They are exactly the same.

17 Q. In what sense do you mean that?

18 A. Well, if we -- if we can go to the next slide, this shows
19 why they simply have to be exactly the same. The class library
20 and the API specification for the class library are created
21 from the exact same input, the exact same source file.

22 So in the bottom middle of this picture, that's an
23 actual fragment of the source code for the Channels Class.

24 **THE WITNESS:** Sorry about the small type, your Honor.

25 **THE COURT:** Can you blow that up? I can't read it.

1 **MR. JACOBS:** It's fixed, your Honor.

2 **THE COURT:** I want to make sure I understand it.
3 What do you mean, it's exactly what is in the source file?

4 **THE WITNESS:** If I could explain, sir.

5 So, when a Java developer creates an API in a class
6 library like this, you know, when I was working on this, I was
7 working on one file. That's the file in the bottom middle.
8 That's a Java source file. It's in the Java programming
9 language. That source file is processed in two different ways.
10 It's run through the Java Language Compiler. That's the gears
11 with the blue arrow on the right. The Java Language Compiler
12 compiles the parts of the API that describe the names and the
13 structure and everything, and it also compiles all of the
14 actual instructions within the methods into the zeros and ones
15 that the virtual machine can understand. And those zeros and
16 ones wind up in the class library, along with all the other
17 classes.

18 Now, we also run that source file through another
19 tool called the Java Documentation Extractor or JavaDoc for
20 short. That tool processes this file. It pulls out the
21 structure, the names. It ignores the actual instructions in
22 the methods. It also pulls out the English prose, which is in
23 comments in this file, and produces the web page that we have
24 been looking at already.

25 So in a very real sense this is software that

1 contains its own blueprint. All right. An API is a blueprint,
2 well, the blueprint is in the source file along with all of the
3 instructions that actually wind up in the class library.

4 **THE COURT:** So let me ask a question about that. You
5 see in the one on the left it says, "Utility methods for
6 channels and" -- is that "streams"?

7 **THE WITNESS:** Yes, sir.

8 **THE COURT:** Very small.

9 All right. So that wording, in exactly that form,
10 are you saying we would find that somewhere in the middle
11 diagram?

12 **THE WITNESS:** Yes, sir. In fact, if you look -- you
13 can see on the diagram on the middle part, that typewriter
14 text, the very third line, I believe, says exactly, "Utility
15 methods for channels and streams."

16 **THE COURT:** I can't read it. It's so small. I'll
17 take your word for it. But that's what it says?

18 **THE WITNESS:** Yes, sir.

19 **THE COURT:** So everything on the -- you see up there
20 where it says, "Overview Package Class Use, Tree Depreciated
21 Index Help." You're saying all of that, every single word on
22 the left is going to be found somewhere in the middle?

23 **THE WITNESS:** No, sir.

24 **THE COURT:** Okay. Which part is there and which part
25 is not there?

1 **THE WITNESS:** So, the elements on the top of the page
2 to which you just referred, those are on every JavaDoc output
3 page. Those are just navigational elements that let you click
4 around and find different parts of the documentation because
5 there's a separate page for every class and interface.

6 In terms of the actual text, the words are copied
7 over, the API structure is copied over from the source file,
8 and all of the words describing each method or field are also
9 copied over.

10 **THE COURT:** Where does it start being copied over?
11 What's the first thing on the left that is copied over?

12 **THE WITNESS:** The first thing on the left that is
13 copied over would be the name. Java.nio.channels Package, and
14 that's right above the big words which say "Class Channels."

15 **THE COURT:** And then all the way down to the bottom,
16 including where those boxes -- what's in those boxes, that is
17 extracted from the middle?

18 **THE WITNESS:** Yes, sir.

19 **THE COURT:** How about the word "Method Summary," is
20 that part of the template?

21 **THE WITNESS:** No, sir. That's part of the template.
22 That's on every page.

23 **THE COURT:** How about that word "Since"? Is that
24 part of the template?

25 **THE WITNESS:** "Since" is part of the template. The

1 1.4 value came out of the source file.

2 **THE COURT:** Thank you. I understand.

3 **MR. JACOBS:** Actually, your Honor, would you like --
4 we have some copies, if it would be of assistance to the Court.

5 **THE COURT:** Well, this is not part of the -- if
6 counsel is okay with giving it to me, I'm fine with you letting
7 me have a set.

8 But what do you say? Is that all right?

9 **MR. PURCELL:** No objection.

10 **THE COURT:** I'm sure counsel is going to have a
11 similar set and we'll do the same with this witness or a
12 different one.

13 (Whereupon, document was tendered
14 to the Court.)

15 **THE COURT:** All right. Thank you.

16 **BY MR. JACOBS:**

17 **Q.** I would actually like to step through that one more time
18 so that we're precise.

19 To summarize your testimony, there are three sources
20 of information in the documentation. There is template
21 information such as "Method Summary" --

22 **MR. PURCELL:** Objection, leading, your Honor.

23 **THE COURT:** Well, is this meant to be a summary of
24 what we just went over?

25 **MR. JACOBS:** It is, your Honor.

1 **THE COURT:** Overruled. Go ahead.

2 **BY MR. JACOBS:**

3 **Q.** There is template information such as "Method Summary"
4 that is inserted in the paper by the Java Documentation
5 Extractor, right?

6 **A.** Correct.

7 **Q.** And then there is some information on the upper left-hand
8 corner which comes from developer written comments in the
9 source file?

10 **A.** Correct.

11 **Q.** And there's some information that comes from developer
12 written code in the source file, correct?

13 **A.** Yes.

14 **Q.** Okay. So can we just -- let's just go through that
15 step-by-step with the material in the upper left-hand corner.

16 **A.** Okay. So you want me to look at each element and say
17 where it came from?

18 **Q.** Until it gets tedious. So, yes.

19 **A.** All right. Oh, zoom. Thank you.

20 Okay. So starting at the top, everything down to the
21 first horizontal gray line, that is part of the template.
22 Although the specific links -- you know, you see links there,
23 "prev class," that's for previous class. "Next class," that's
24 for next class. If you click on those, you will go to other
25 classes in the same package. So the text for those things is

1 the same on every page, but where that link will take you is
2 different for every page and is actually determined from the
3 source file. So below that first horizontal line we have in
4 smaller type the java.nio.channels Package name. And then
5 below that in quite large type "Class Channels." This is
6 telling you this is a class. Its name is Channels. It's in
7 the java.nio.channels Package.

8 Then next below that, in the typewriter font --
9 essentially whenever you see typewriter font, that is a
10 fragment of Java programming language code that has been copied
11 literally from the source file. So the typewriter font is
12 saying java.lang.Object -- sorry, I misspoke. Java.lang.Object
13 doesn't occur in the source file, but most everything else
14 does.

15 So java.io.channels.channels, this class here, is
16 grouped under java.lang.Object. Now, in this particular class,
17 that's not very interesting, but if they were looking at some
18 other class, there could be a whole nother tree here. Just
19 like the other trees we've been looking at that show you all of
20 the intermediate classes between java.lang.Object and the class
21 in question.

22 Okay. Now, after the next horizontal line, the
23 second horizontal line going down on the page, we see words in
24 typewriter font saying "public final class Channels" "extends
25 Object."

1 So "public final class Channels," those words were
2 copied from the source file.

3 **Q.** And when you say "copied from the source file," which
4 aspect of the source file are you referring to?

5 **A.** They are copied from the programming language constructs
6 in the source file, not from the English prose.

7 Then "extends Object," in that particular case that's
8 inserted by the tool just as a handy reminder that it extends
9 object. You won't find that in the source file. It could have
10 been in the source file, but it doesn't really serve any
11 purpose.

12 Then we have in the Roman font the paragraph "Utility
13 methods for channels and streams."

14 And then following that another -- another bit of
15 English prose telling you that, "This class defines statistic
16 methods that support the interoperation," and so on and so
17 forth. I've already read that through.

18 So the English prose is all copied from what we call
19 a documentation comment in the source file.

20 So in pretty much every programming language a
21 developer can write comments which can describe what's going
22 on.

23 In the Java programming language you can write two
24 kinds of comments. You can write a regular comment that's just
25 a reminder for yourself or somebody else who is going to be

1 reading the source code later about what's going on. You can
2 also write a special kind of comment called a documentation
3 comment, and that documentation comment, that is what is copied
4 by the java.tool into the sort of a web page. You can even
5 have formatting and formulas and tables in a documentation
6 comment.

7 So moving down we have the word "Since." That's
8 inserted by the tool. The value "1.4" comes from the inside of
9 the top most documentation comment for this class. That's just
10 saying it was introduced in the 1.4 release.

11 **Q.** And "Method Summary" comes from the Java Documentation
12 Extractor?

13 **A.** Right. So this table and its title comes from the
14 extractor tool. The content of each cell comes from -- comes
15 from the corresponding word part of the source file that
16 describes the method and what it does.

17 So just to take the very first one, that's the
18 newChannel method, which we saw before.

19 Just keep highlighting to the right, please.

20 It takes an InputStream. There is English -- the
21 first sentence of the English prose from its documentation
22 column that's copied, it says, "Constructs a channel that reads
23 bytes from the given stream."

24 And then in the left-hand cell that's highlighted, we
25 see the word "ReadableByteChannel." "ReadableByteChannel" that

1 was copied from the source code part, the language code part of
2 the source file. And the word "static" was also copied. That
3 word "static" occurs also in the source file.

4 And it's a similar story for the rest.

5 **THE COURT:** I'm back on this one. It has three
6 boxes. I was with you until we got to "static
7 ReadableByteChannel" and I don't see that in the middle
8 diagram. So I'm surely just missing it. Where would that be?

9 **THE WITNESS:** So that middle source code image was
10 highly compressed. Much of the source file was omitted because
11 otherwise it would be even more unreadable than it already is.

12 If we can go back to that, maybe I can find it; but I
13 don't remember right now, sir, whether that particular method
14 declaration made it into that highly summarized fragment.

15 **THE COURT:** So this is something gemmed up just for
16 the lawsuit or is this a real thing?

17 **THE WITNESS:** This is a real thing. This is the
18 actual documentation for this class. And I could show you
19 the -- the actual whole source file, if you wanted to see it.

20 **MR. JACOBS:** We have that, your Honor, if you would
21 like. We can set it up at a break.

22 **THE COURT:** I think at some point it ought to be put
23 in evidence. I realize this is for illustrative purposes and
24 may be abbreviated.

25 All right. Go ahead.

1 **BY MR. JACOBS:**

2 **Q.** I would like to ask you about some of the other API
3 packages that are in issue in this case. This is a list of the
4 37 packages that Oracle identified in the lawsuit. Can you
5 talk about what some of these packages do?

6 **A.** Sure. So earlier I mentioned the example of an API for
7 creating secure internet connections. It's to pass information
8 securely over the internet. That would be found over in the
9 right-hand column the package called javax.net.ssl. That's an
10 abbreviation for the secure socket layer, which is a technical
11 standard.

12 Another examples in here. Another one that might be
13 interesting is the one called java.sql. SQL is the structured
14 query language for relational databases. SQL is a package,
15 provides an API so that a Java developer can write code that
16 can pull information out of a relational data base and, also,
17 update information in a relational data base. And this is a
18 value to Java developers because relational databases is where
19 you find a lot of data, and it's also valuable because it works
20 with a wide variety of relational databases.

21 **THE COURT:** What is a relational data base?

22 **THE WITNESS:** A relational data base is a data base
23 organized in tables. Basically, you can think of it as a data
24 base of spreadsheets.

1 BY MR. JACOBS:

2 Q. If you run these packages through that JavaDoc creator, it
3 creates documentation for these packages. How many pages does
4 that take?

5 A. So if you ran the source files for all of these packages
6 through the tool and printed out all of the pages, I believe
7 the number you would get is about 11,000.

8 THE COURT: That's for these 37 or for all of them?

9 THE WITNESS: That's for these 37, sir.

10 BY MR. JACOBS:

11 Q. And to illustrate what that's like, do you know how many
12 boxes that might fill?

13 A. I reviewed a printed form of this. It fits three entire
14 banker's boxes and about, I don't know, a quarter or a third of
15 a fourth box.

16 Q. I would like you to take a look at Exhibit 610, please.

17 (Whereupon, document was tendered
18 to the witness.)

19 Q. And did you take a look at this before when you testified
20 today?

21 A. Yes, sir, I did.

22 Q. What is in Exhibit 610?

23 A. Exhibit 610 is a DVD archive of files which contain the
24 source code for JDK 5, which is the implementation of Java 5.

25 MR. JACOBS: I offer into evidence.

1 **THE COURT:** Any objection?

2 **MR. VAN NEST:** No objection.

3 **THE COURT:** All right. That's received. But it says
4 610.2 on the screen. So is it 610 or 610.2?

5 **MR. JACOBS:** This is 610, your Honor.

6 **THE COURT:** 6.10 admitted into evidence.

7 (Trial Exhibit 610 received
8 in evidence)

9 **THE COURT:** Whatever is on the screen is not the
10 right one. Don't show that to the jury yet.

11 (Discussion held off the record
12 amongst counsel.)

13 **MR. JACOBS:** I'm sorry. I think we got mixed up,
14 your Honor. 610.2 is the documentation.

15 **THE COURT:** 610 is what's in evidence.

16 **MR. JACOBS:** We'll check this at the break and make
17 sure we have got the right numbering your Honor.

18 Withdrawn for the moment.

19 **THE COURT:** What's withdrawn?

20 **MR. JACOBS:** 610.

21 **THE COURT:** Well, it's already --

22 **MR. PURCELL:** We don't object to them withdrawing it.

23 **THE COURT:** 610 is no longer in evidence.

24 (Trial Exhibit 510 withdrawn from evidence)

25 **THE COURT:** We'll get it straightened out and not

1 take up the jury's time on this.

2 **MR. JACOBS:** Exactly.

3 **THE COURT:** Please go ahead.

4 **BY MR. JACOBS:**

5 **Q.** Let's talk about the process for designing these APIs.

6 What kind of particular detailed organization and
7 structure is required in order for Java API to interact with
8 the computer or operating system?

9 **MR. PURCELL:** Objection, leading.

10 **THE COURT:** That's not -- it's a "what" question.
11 That's not a leading question.

12 Overruled, please answer.

13 **A.** So very little organization or structure is required for
14 the virtual machine and the computer running it to understand
15 code that be written.

16 In the Java Platform APIs, for example, we could have
17 put all of the classes into one giant package. We could have
18 given classes packages, interfaces, methods, fields. We could
19 have given them completely random names and they would still
20 run just fine on the computer. They would be really hard to
21 use from the developer's, the software developer's standpoint,
22 but in a certain sense the computer doesn't care. They are
23 just names.

24 **Q.** So what are -- as you do API design in your work at Oracle
25 or before that at Sun, what are your main goals?

1 **A.** So there are many considerations for the API design
2 process. One of the most important ones and one of the big
3 values of the Java Platform is that APIs should be easy to
4 learn and easy to use; that the Java APIs are well known for
5 having that property, and that's something that we work hard to
6 preserve.

7 Now, there are other considerations as well.

8 **Q.** What are some of those?

9 **A.** Well, for example, you don't want to design an API that
10 inherently requires an inefficient implementation. You know,
11 we have had examples of this in the past where that kind of
12 mistake was made and, for example, every time you invoke a
13 method, it goes off and creates a new member of some other
14 class, just to give you a very simple answer. And if you do
15 that hundreds of thousands of times in a second, it can slow
16 down your program, when all you really wanted was a simple
17 answer that didn't require creating a new object. So
18 performance is important.

19 Another aspect is portability. The entire -- the
20 Java theme of write once, run anywhere is all about allowing
21 developers to write an application once that can run across a
22 wide variety of actual computers and operating systems without
23 change.

24 So, for example, we wouldn't want to define an API
25 for doing graphical displays on a screen that only works on the

1 Windows operating system or only works on the Linux operating
2 system. We defined an API that hides those details. So from
3 the developer's point of view, you're writing to the Java API
4 for graphical user interfaces and the library takes care of
5 making the right things happen on top of different operating
6 systems.

7 **Q.** If you are launching an API development process, how do
8 you begin?

9 **A.** So that generally begins with, you know, a kind of
10 abstract high level exercise to figure out, well, what are the
11 general problems we're trying to solve? What are the
12 constraints of the technical design space that limit us?

13 And a very useful tool in that process is to collect
14 what we call use cases. So one way to do that is you actually
15 sit down with other software developers and ask them, "So, if I
16 were going to design an API for, say, data structures for a
17 spreadsheet, give me some examples, just sketch out here what
18 sorts of things would you -- problems would you want to be able
19 to solve with that API?" And in creating the use case, the
20 developer you're talking to might actually give you a code
21 fragment. They haven't even seen an API yet, but by showing
22 you code that they might like to write, they are giving you an
23 idea of exactly the sort of problem they want to solve.

24 Once you have a set of use cases and some general
25 requirements, then you sit down and start to think about, well,

1 what are the core classes and interfaces and methods I would
2 want in the API? And it's important fairly quickly to get to a
3 high level summary of that so that you can understand, you
4 know, what a possible structure may be and so that you can show
5 it to other people and get feedback on it.

6 And when you do that, you actually -- I mean, what I
7 do, what every Java API developer I know does, is you start
8 writing in fragments of actual Java programming language code.
9 You would sketch out in a file -- maybe it's just an email.
10 It's not an actual source file. You sketch out in a file,
11 well, there is going to be this class called Channels and it's
12 going to have a NewInputStream method and maybe some other
13 method in it, and sketch out a few other classes, and you send
14 that around to get comments from your colleagues, other people
15 you're working with.

16 As time goes on, as you get feedback, you revise that
17 design. It starts to get a little bit longer because it's
18 getting more real. Maybe you start to insert some of the
19 English prose. It's really sketchy right now, but you started
20 to do that.

21 And then another thing to get to, not too quickly,
22 but as quickly as you can, is to write actual instructions in
23 the method, write actual code into those so that you can
24 compile this file, which is now a Java source file. You can
25 compile it and share that compiled version of this class with

1 other developers to get their feedback.

2 Some developers are really good at looking at just a
3 design and saying, "Oh, well, yea, I could use that," or, "No,
4 that doesn't solve my use case." Other developers really like
5 to have code that they can run and write their own code to use
6 directly to see how it works. So it's important to have that.

7 Another reason that working on the implementation at
8 the same time is important is that when you're designing an
9 API, working on the implementation at the same time often
10 identifies bugs in the API design. You might notice, for
11 example, that the point I said earlier about an API
12 requiring -- sort of requiring bad performance. You might
13 write some code, do a few tests and see, Well, no, I don't
14 actually need to allocate an object every time. Let me change
15 the API to work in a different way so that bad performance
16 isn't required.

17 **Q.** How long does it take you to design a substantial Java API
18 package?

19 **A.** So to continue with the java.io Package example, that was
20 an effort that took almost exactly two years. I was probably
21 working on it around half time during that two-year period.

22 **THE COURT:** Just you or did you have helpers?

23 **THE WITNESS:** I had helpers. I had a couple of other
24 engineers on the team helping me with the design and the
25 implementation, and I also had a group of experts who were

1 advising on the actual design.

2 **BY MR. JACOBS:**

3 **Q.** So let's go right to that. Let's talk about how the
4 experts that advised on the design get involved. What is that
5 mechanism?

6 **A.** So that happens in the Java Community Process, or JCP for
7 short. That's a process that was originally set up by Sun and
8 is now continued by Oracle that allows a wide variety of
9 people, organizations and companies in the Java software
10 ecosystem to participate in the creation of new Java API
11 specifications and related technologies.

12 So the way that works is that the basic unit in the
13 JCP is a thing called a JSR, Java Specification Request. A
14 Java Specification Request is essentially a proposal. In that
15 proposal you sketch out the problem you're trying to solve,
16 maybe some really high level ideas of how you're going to start
17 solving it. You relate it to any existing APIs.

18 You know, an important in the JSR form asks is, well,
19 why is this needed? Is there an existing Java API that could
20 be used for this? Why should we burden the entire community
21 with yet another API? You need to have a good reason.

22 So in the case of the java.io APIs, I wrote up such a
23 JSR. I got review comments on it, both inside Sun and from
24 outside Sun. I submitted that to the Java Community Process.

25 There's a group in the Java Platform called the

1 Executive Committee that has representatives from -- had at
2 that time representatives from Sun, Oracle, IBM, HP, SAP and
3 some individuals as well. The Executive Committee's job is to
4 oversee the process, make sure that everything is running
5 smoothly. They don't actually make technical decisions.

6 But in the lifetime of the JSR, the first thing they
7 do is approve a JSR. Or, in very rare cases they disapprove
8 it.

9 Anyway, I submitted the JSR. It was approved. I
10 then formed what the JCP calls an expert group. So this is a
11 group, a small group of people with experience in the area from
12 Sun and also from other companies.

13 For example, there was a senior engineer from IBM
14 there. There was an engineer from BEA there. BEA, of course,
15 was later acquired by Oracle.

16 There were also some individuals. We had an
17 academic, a professor who is well-known in the Java community,
18 and another guy from -- from UC Berkeley. We also had an
19 independent consultant, who is an expert on his own in the
20 field of high-performance computer IO.

21 So I got an expert group together and we started
22 working. We worked throughout that two-year period.

23 Generally, for any particular area we were working
24 on, I would offer maybe a sketch of an initial design and ask
25 for feedback on that.

1 They would give me feedback. Sometimes the feedback
2 was, yeah, that looks good, but maybe use some other method
3 here. Sometimes the feedback was, I don't understand what
4 you're trying to do with that. Why don't you try to do it this
5 way, with these three classes instead.

6 And my job as the specification lead was to, in a
7 sense, absorb all of that, understand it, and distill it down
8 to what became the actual situation.

9 So this took place over three years. I think we
10 exchanged around 1700 e-mails during that. We worked almost
11 exclusively in e-mail.

12 And the specification went through over 30 separate
13 drafts. The first draft, obviously, was pretty sketchy. And
14 that evolved over time into what became the final API
15 specification for the java.io JSR.

16 **Q.** Is there a general understanding among the expert groups
17 that you've been involved with that the contributions to the
18 API, the kind of inflow of information -- what kind of
19 understanding do people have about whether that work should be
20 original or can be copied from somebody's API?

21 **A.** Oh, it's required to be original.

22 **Q.** What do you mean by that? What do you mean by "original"?

23 **A.** So the -- the JCP has a document called the JSPA, the Java
24 Specification Participation Agreement. That's something that
25 every member of the JSPA -- sorry, every member of the JCP has

1 to agree to this.

2 And that document, it's this big legal thing, but,
3 you know, it basically says -- well, it says, among other
4 things, that if you contribute IP, either, you know, some code
5 sketches, some prose, whatever, if you contribute IP into this
6 expert group, then you're granting all the necessary rights to
7 that IP to the specification lead.

8 Therefore, if you're contributing IP in, you better
9 have the rights to that IP to start with. If you got it from
10 somewhere else, then you're violating someone else's
11 intellectual property.

12 Q. Now, was NIO unique in the fact that there was an expert
13 group and participation by others in its development?

14 A. No.

15 Q. Has that happened in other cases?

16 A. Every JSR in the Java Community Process has experts from
17 companies other than Sun or Oracle.

18 Q. Now, you've been working in this field of API design for
19 how many years?

20 A. Sixteen.

21 Q. Do you consider your work in API design to be creative?

22 A. Absolutely.

23 Q. In what way?

24 A. In anything except the most trivial API design, there are
25 so many choices to be made I wouldn't know how to start

1 counting them.

2 You need to -- you need to choose names. Choosing
3 names is really important in an API. Sometimes a name is
4 suggested by the context in which it's going to be used. But
5 other times a name -- finding the right name for something
6 requires a lot of thought.

7 I'm reminded of what the old mystics used to say: If
8 you know the name of the thing, you have power over the thing.

9 And so it's really important in an API for it to be
10 easy to learn, to choose good names.

11 Good names can be really hard because if we think of
12 the space of names as real estate, many of the good names are
13 already taken, and you can't reuse them.

14 Especially the good short names. So if you're
15 designing an API, you want to take into careful consideration,
16 well, if I'm going to define a class, is this a class that many
17 developers are going to use, or -- and so I should really work
18 hard to find a great descriptive short name for it? Or is this
19 a class that is not going to be used that much, and so it's
20 okay if it has a longer and uglier name? So there are a lot of
21 choices to be made there.

22 But it's not just about the names. It's also about
23 the structure. You know, how should classes be organized under
24 other classes? How should interfaces be organized under other
25 interfaces? How should classes and interfaces relate? Where

1 should the methods be? What should the methods be named? What
2 kinds of inputs do the methods take? What kind of outputs do
3 the methods provide for the fields? How do with they relate?
4 Is the value in a field a color, or is it just a number, or is
5 it a string, or is it something else?

6 So there are many, many design choices to be made.

7 **THE COURT:** Can I ask a question before you leave
8 this subject.

9 This committee, do any of the -- if someone on the
10 outside of Sun wanted to propose an API or a new method to go
11 in an old API, did that ever happen?

12 **THE WITNESS:** Oh, yes. That happens all the time.

13 **THE COURT:** Give us an example of how that would come
14 down.

15 **THE WITNESS:** So there have been quite a few JSRs
16 that were not initiated by Sun, and now not initiated by
17 Oracle. I don't remember offhand what the statistics are, sir.

18 In the case of someone outside the company who wants
19 to propose just a small new thing, that would generally come in
20 through a process we have for collecting input from any
21 software developer as a -- a request for enhancement.

22 When a developer submits an idea like that, they
23 might actually include a little bit of code. And when they
24 submit that idea, there's -- there's a button I believe they
25 have to click on where they agree that they're contributing any

1 IP that might be in that idea, that code, whatever it is, so
2 that Sun or now Oracle can use it.

3 An additional way things can come in more recently is
4 through the OpenJDK community, where we have outside
5 contributors who are actually able to suggest, review, and
6 actually put the code in themselves, because they've
7 demonstrated they have the experience and knowledge and
8 judgment to do that in the right way.

9 **THE COURT:** Thank you. Go ahead.

10 **BY MR. JACOBS:**

11 **Q.** Could you give an example of a package in the Java API
12 that has a different -- that has a different version of it out
13 there with a different structure?

14 **A.** So pretty much any Java API package you could look at and
15 find something out in the world that's sort of like it. But --
16 excuse me -- a good example is a package called
17 java.util.logging. L-o-g-g-i-n-g.

18 Logging is a facility that is often used in programs
19 that run for a very long time. Like maybe on a server,
20 computer, something that's processing. Bank transaction is --
21 hopefully, it's going to run without crashing for at least a
22 day during the banking day. During that time, many different
23 things could happen. If something goes wrong, you want to be
24 able to diagnose what went wrong with it.

25 So in a long-running program, it's useful to create a

1 log of its activities. In a log for a banking application, you
2 might record each transaction, just in text form. What's going
3 on with this transaction? Is it completed yet? Whose account
4 is it for? And so forth. So if something does go wrong, you
5 can go back and look at that log.

6 Anyway the java.util.logging API package is a simple
7 facility for logging messages. Around the time it was
8 introduced, there was a competing package called Log4J. This
9 was created by developers outside of Sun.

10 There's actually, to this day, a little bit of
11 tension in the community because the people who like Log4J,
12 they really hate java.util.logging. And the people who like
13 java.util.logging don't much like Log4J.

14 But if you look at them from a functional
15 perspective, they solve exactly the same kinds of problems.
16 But, they are very different APIs. They have different class
17 names, different method names, different interfaces, and
18 different relationships.

19 **Q.** Has the number of Java APIs changed over time?

20 **A.** The number of Java APIs has grown dramatically over time.

21 **Q.** How many API packages were in the first release of Java,
22 in 1996?

23 **A.** In 1996, Java 1.0 had seven API packages.

24 **Q.** And remind us how many there are in SE 5 and in Java 7.

25 **A.** Java SE 5 had 166, and Java 7 has 209.

1 Q. Did Sun or Oracle have to create this many APIs over time?

2 A. No.

3 Q. So why were they created?

4 A. They were created in order to -- to encourage the adoption
5 of the Java platform by adding more and more facilities to make
6 it an attractive platform for developers to use.

7 Q. Are there other software platforms that have taken a
8 different approach?

9 A. Sure.

10 So, for example, there's the C programming language.
11 It is almost always provided with something called the C
12 Standard Library. C is very old language. It's been around
13 since the '60s.

14 And the C Standard Library is really very simple and
15 primitive. It lets you manipulate strings. It lets you do
16 simple IO. It has facilities for basic threading, computation.
17 Uhm, a variety of numeric things in it. Some string formatting
18 stuff.

19 But that's it. There aren't even basic data
20 structures in the C Standard Library. It's very bare bones.

21 Q. Are there other platforms that have extensive sets of
22 libraries?

23 A. Sure. One example would be Python. The Python
24 programming language comes with a very large, extensive
25 collection of libraries. In that sense, it's much the same as

1 the Java platform.

2 Q. In what sense is it the same?

3 A. In that its set of libraries, its -- and Python also
4 organizes these in classes and related modules. That set of
5 libraries is extremely large. It covers a lot of ground.
6 Maybe not exactly as much ground as the Java libraries do, but
7 it's still quite significant.

8 Q. Are the APIs in Python the same as the APIs in Java?

9 A. No.

10 Q. In what way are they different?

11 A. Well, Python is a significantly different programming
12 language than Java. So you might find some -- some things that
13 appear to be related here and there, but, generally speaking,
14 you won't find the same APIs.

15 Q. How do you decide what to add when you're evaluating, as
16 the chief Java architect, whether to invest in a new API?

17 A. Well, that's a -- that has many, many considerations. One
18 is, do we think it's actually something that many Java
19 developers will use?

20 If somebody were, for example, to submit a JSR -- and
21 this has happened plenty of times -- for something that's
22 highly specialized, that JSR and the library and the
23 specification that result from it might be useful to a couple
24 of hundred thousand Java developers. But that -- that's not
25 sufficient justification to put it in the Java platform that

1 everybody will have.

2 Something has to be commonly used. It has to have a
3 high-quality design, a high-quality implementation.

4 **Q.** Are you ever concerned about making a particular API
5 package too big?

6 **A.** Oh, yes.

7 **Q.** What would happen if you did that?

8 **A.** If an API package were too big, then it would be hard to
9 learn and hard to use.

10 Humans aren't good at looking at very long lists of
11 unstructured information. We could have put all of the NIO --
12 all of the new IO APIs into one package. But within that
13 package we would have had to have a lot of prose explaining,
14 well, these classes over here that are kind of for this
15 particular set of functions, and these over here for that other
16 set, but they all would have been listed in order.

17 So humans aren't good at long lists of things.
18 Humans are really good at hierarchal knowledge structures. And
19 that's why we organize packages in a tree-like structure, so
20 that you can start -- in an IO case, you can start with the
21 java.nio package, and that has the basic classes that are
22 common to all of the new IO APIs. And its prose includes an
23 overview of the other packages so you know where to go if you
24 are looking for other things. And then each of the other
25 packages has its own description, has its own content.

1 Q. The jury has heard a lot about write once, run anywhere.

2 How do the APIs and class libraries you've been
3 involved in relate to that concept?

4 A. So earlier I used the example of the class libraries
5 hiding the details of different graphical Windowing systems.
6 That's one good example.

7 We always try to design APIs that aren't specific to
8 any particular operating system. And that's one of the key
9 requirements for write once, run anywhere.

10 Q. What do you do about maintaining the consistency of the
11 APIs?

12 A. I'm not sure in what sense do you mean --

13 Q. How do the APIs' specifications relate to maintaining
14 write once, run anywhere?

15 A. Well, as I said, the APIs need to be designed in a way
16 that is independent of the details of any particular operating
17 system.

18 Q. In your work at Sun, then Oracle, were you involved in
19 efforts to maintain the compatibility across different
20 implementations of the class libraries?

21 A. Yes.

22 Q. Can you describe that.

23 A. So compatibility has a couple of different aspects. One
24 is the compatibility of all the different implementations of a
25 particular version of the Java platform.

1 For example, Java 7, you can get implementations of
2 that from Oracle. You can get other implementations from IBM
3 or from Red Hat. Several other vendors.

4 Compatibility across those is another one of the
5 foundations of write once, run anywhere. If a developer writes
6 an application and it runs fine on Oracle's Java implementation
7 but doesn't work on IBM's, then that's a bug. You know, it
8 might actually be Oracle's bug and not IBM's bug. But at the
9 end of the day we figure it out.

10 So compatibility across all these different
11 implementations is something in which Sun, now Oracle,
12 continues to invest a significant amount of effort.

13 When a JSR is done in the Java Community Process, you
14 have to produce the API specification, you have to produce the
15 implementation that is the class library form.

16 And you also have to produce a third thing, which we
17 call the TCK. That stands for Technology Compatibility Kit.
18 And it's a potentially very large suite of test programs that
19 run against the implementation to validate that it's behaving
20 correctly.

21 For Java SE itself, for example, we have a TCK, and
22 it contains, I think, at last count a couple of hundred
23 thousand separate tests.

24 Oracle's implementation has to pass those tests.
25 IBM's implementation has to pass those tests. Every

1 implementation, in order to be compatible, must pass those
2 tests.

3 Q. When you were at Sun, were you involved in any legal
4 efforts to assure that compatibility was maintained across Java
5 platforms?

6 A. Across different implementations of the same version?

7 Q. Yes.

8 A. I was peripherally involved in the Microsoft lawsuit in
9 the late '90s.

10 Q. What was your involvement --

11 MR. PURCELL: Objection, Your Honor. Motion in
12 limine.

13 THE COURT: Sustained.

14 We weren't going to get into that, were we?

15 MR. JACOBS: I think we are getting into the
16 anti-fragmentation aspects of it, Your Honor.

17 THE COURT: Is that allowed?

18 MR. PURCELL: A general discussion of fragmentation
19 is allowed, but dollar figures certainly were not.

20 THE COURT: All right. We'll stick to that
21 guideline.

22 BY MR. JACOBS:

23 Q. What was your involvement in the Microsoft dispute?

24 A. Thankfully, it never brought me to a courtroom.

25 At that time, I was fairly junior, but I did the

1 technical investigation which identified the specific ways in
2 which Microsoft had added some of their own functionality to
3 the Java Standard APIs, and they also had removed some of the
4 required functionality from the standard APIs.

5 Q. Is there a terminology in the Java world for what you
6 label something when you add or subtract?

7 A. It's an addition or it's a subtraction.

8 Q. How did they create an incompatible version of Java? How
9 did Microsoft create incompatible version?

10 A. So they wrote their own implementation. They left some
11 things out. And they added some extra stuff in.

12 Q. And what is leaving something out called in the world of
13 Java fragmentation?

14 A. A bug.

15 THE COURT: A what?

16 THE WITNESS: A bug.

17 BY MR. JACOBS:

18 Q. Are you familiar with the term subsetting?

19 A. I am familiar with the term subsetting.

20 Q. What does subsetting mean?

21 A. So subsetting is when you have an API specification that
22 says you need X, Y and Z, and you build an implementation of
23 that API specification that only has X and Y.

24 Q. And are you familiar with the term supersetting?

25 A. Yes.

1 Q. What is supersetting?

2 A. Supersetting is when you have an API specification for X,
3 Y and Z, and you build an implementation which has XYZ and W
4 because you thought it was a good idea.

5 Q. Did Microsoft -- in your analysis did you establish
6 whether Microsoft had subsetted?

7 A. Yes.

8 Q. And did you establish whether Microsoft had supersettted?

9 A. Yes.

10 Q. And were you involved in that effort because of a
11 litigation between Sun and Microsoft?

12 A. The technical investigation I did was prior to that
13 litigation.

14 Q. I'd like to talk a little bit about the difference between
15 the Java programming language and the Java class libraries and
16 APIs.

17 What is your role in identifying the boundaries
18 between the language and the APIs in Java? What do you do in
19 your job?

20 A. I would say my role these days is to ensure that boundary
21 remains as clear as it is.

22 Q. And what is that boundary?

23 A. So the Java programming language, it's a programming
24 language, it's a way of expressing instructions for a computer.
25 It includes all of the concepts that we've been discussing.

1 But that's it.

2 Whereas, the Java APIs are the blueprint for the
3 class libraries. They are built using the programming
4 language. But they are a distinct thing from it.

5 **THE COURT:** May I ask a question on that?

6 Earlier you gave an example of, I believe it was the
7 C or C+ language.

8 **THE WITNESS:** Yes, sir.

9 **THE COURT:** And if we -- so I want to get you to
10 compare that language to the Java programming language,
11 ignoring all of the APIs.

12 **THE WITNESS:** Certainly, Your Honor.

13 **THE COURT:** All right. Are they roughly comparable,
14 or is the Java programming language like rockets compared to a
15 two-wing airplane?

16 So what's the comparison between the C+ Basic
17 language and the basic Java programming language?

18 **THE WITNESS:** Your Honor, I would say that if Java is
19 a rocket then the C language -- it's not as bad as a two-winged
20 airplane, but it's probably like a DC-3.

21 The C language does not include, for example, the
22 concepts of classes or interfaces we've been discussing here.
23 It does have things that are like methods and things that are
24 like fields; although, they are named differently.

25 **THE COURT:** All right. Continue on.

1 Now, we're going to break in -- what time is it?
2 It's -- we've got about five minutes, right. Okay.

3 **BY MR. JACOBS:**

4 **Q.** If one wants to go look and find out what the Java
5 language specification is, where does one go?

6 **A.** There's a book called the *Java Language Specification*.

7 **Q.** Would this be it (indicating)?

8 **A.** That would be the third edition, yes.

9 **MR. JACOBS:** Your Honor, we would offer trial Exhibit
10 984 in evidence.

11 **MR. PURCELL:** No objection.

12 **THE COURT:** 984 is received in evidence.

13 (Trial Exhibit 984 received in evidence.)

14 **MR. JACOBS:** May I approach, Your Honor?

15 **BY MR. JACOBS:**

16 **Q.** Can you explain to us the -- at a very high level what is
17 in the *Java Language Specification*, and in particular how the
18 boundary that you were describing earlier is reflected in it?

19 **A.** So the *Java Language Specification*, it's a highly
20 technical document. It describes the language, basically,
21 building from the -- from the bottom up.

22 That's reflected in the table of contents, which
23 starts at the very beginning, just describing general concepts
24 about the grammar of the language.

25 And it then moves upward, talks about the different

1 elements of the grammar, the rules for constructing programs in
2 the Java programming language.

3 Then it starts talking about types and values and
4 variables. You know we haven't even got to methods yet.

5 And there's another chapter talking about how to
6 convert different values. How do you convert an integer number
7 to a floating point number, for example.

8 And then there's an entire chapter on names and what
9 they mean, how they are interpreted in the language.

10 Then we finally get in Chapter 7 to packages. That
11 describes that concept. Then we have Chapter 8 on classes,
12 which, as you mentioned, is pretty extensive. A shorter
13 chapter on interfaces.

14 And then some sort of cleanup chapters for
15 miscellaneous chapters like arrays and exceptions.

16 Well, another really important one would be blocks
17 and statements. Those are the actual instructions.

18 Q. So if one wanted to know from the *Java Language*
19 *Specification*, Third Edition, what is in and out of the
20 language, how do you tell that?

21 A. Well, so, the grammar of the language is pretty precisely
22 defined in here. Anything that is not admitted -- well, in
23 anything that is not that grammar or the description of what
24 programs constructed according to that grammar mean, those
25 things are not part of the language.

1 Q. Now, if you were to study this specification to try to
2 determine what, if any, of the 37 API packages that are at
3 issue in this case are included in the Java language, how would
4 you go about doing that?

5 A. Well, what I would do is I would consult the table of
6 contents. Then I might consult the index.

7 Q. And let's take java. -- the one you worked on, java.nio.

8 A. Java.nio?

9 Q. Uh-huh.

10 A. That's not in this book.

11 Q. Is it anywhere in the book? Is it in any coding examples?

12 A. It might be an example. I honestly don't know. I would
13 have to read through them all to find out.

14 I tend to doubt it. I think most of the examples are
15 written using the simpler, more common APIs.

16 Q. So let's --

17 THE COURT: It's 1:00 o'clock now, so I'll let you
18 take half a minute, if you want to. But it's now 1:00 o'clock
19 and time to break.

20 MR. JACOBS: Good time for a break, Your Honor.

21 THE COURT: Remember the admonition. We'll see you
22 back here at the normal time tomorrow. Thank you.

23 THE CLERK: All rise.

24 (Jury out at 1:00 p.m.)

25 THE COURT: Be seated.

1 Mr. Reinhold, you can step down. We will pick it up
2 there. You need to be here at 7:30.

3 Everyone else, please be seated.

4 Here's the time so far. Plaintiff has used 318
5 minutes, by my count. Defendant has used 107.

6 Now, the plaintiff needs -- I don't know how many
7 more witnesses you've got, but you need to be mindful of your
8 overall time limits, and save some time for your
9 cross-examination.

10 **MR. VAN NEST:** Excuses me, Your Honor. Could I have
11 those numbers again?

12 **THE COURT:** This is what I have. If you have a
13 different number. 318 and 107.

14 **MR. VAN NEST:** And that's cumulative total?

15 **THE COURT:** Until right now.

16 **MR. VAN NEST:** All days. Thank you.

17 **THE COURT:** This is inception to date.

18 All right. Any issues for the Court?

19 **MR. JACOBS:** No, Your Honor.

20 **THE COURT:** How many more with Mr. Reinhold?

21 **MR. JACOBS:** Probably about 20, 25 minutes.

22 **THE COURT:** How long will the cross be?

23 **MR. PURCELL:** Unless the scope of the direct changes
24 substantially, probably not that long. A half hour. But we
25 will probably want to call him back in our case.

1 **THE COURT:** All right. I'll let you do that. Any --
2 any -- who else will be here tomorrow?

3 **MR. JACOBS:** Mr. Bloch will be up first, Your Honor.
4 And then Mr. Lindholm tomorrow?

5 (Pleading counsel confer off the record.)

6 **MR. JACOBS:** And Mr. Swetland.

7 **THE COURT:** Mr. Lindholm.

8 **MR. JACOBS:** And Mr. Swetland.

9 **THE COURT:** Mister who?

10 **MR. JACOBS:** Swetland. S-w-e-t-l-a-n-d.

11 **THE COURT:** All right. So no issues for me?

12 **MR. VAN NEST:** We're sorry to disappoint you, Your
13 Honor, but I don't think we have any this afternoon. We'll
14 keep working.

15 **MR. PURCELL:** We'll try to come up with some for
16 tomorrow morning.

17 **THE COURT:** Sure. My thanks to you. See you
18 tomorrow.

19 (At 1:02 p.m. the proceedings were adjourned until
20 Thursday, April 19, 2012, at 7:30 a.m.)

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I N D E XPLAINTIFF'S WITNESSESPAGEVOL.**PAGE, LARRY**

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Cross Examination Resumed by Mr. Boies

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Redirect Examination by Mr. Van Nest

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Recross Examination by Mr. Boise

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SCREVEN, EDWARD

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Direct Examination by Mr. Norton

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Cross Examination by Mr. Purcell

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REINHOLD, MARK B.

(SWORN)

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Direct Examination by Mr. Jacobs

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CERTIFICATE OF REPORTERS

We, KATHERINE POWELL SULLIVAN and DEBRA L. PAS,
Official Reporters for the United States Court, Northern
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proceedings in C 10-3561 WHA, **Oracle America, Inc., vs. Google,
Inc.**, were reported by us, certified shorthand reporters, and
were thereafter transcribed under our direction into
typewriting; that the foregoing is a full, complete and true
record of said proceedings at the time of filing.

/s/ Katherine Powell Sullivan

Katherine Powell Sullivan, CSR #5812, RPR, CRR
U.S. Court Reporter

/s/ Debra L. Pas

Debra L. Pas, CSR #11916, RMR CRR

Wednesday, April 18, 2012